ON

THE RELATION OF IMPORTS TO EXPORTS

BY

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INTRODUCTORY.

In submitting the first essay to the public I desire to make due acknowledgment to the writings of the late Stephen Bourne in his book on "Trade, Population, and Food" (1880) for some of the first principles which it contains. The work is now out of print. What has always impressed me most in Mr. Bourne's work is the soundness of many of his first principles, gained from experience, no doubt, at the Board of Customs, but the moment he departs from these he becomes irrelevant in many directions. For instance, his main theme is that we are a manufacturing nation, and that we must export manufactured articles of utility with which to pay for the food we consume from abroad; which is quite true. But then he proceeds to argue that as a Free Trade nation we must buy the best that is produced or manufactured in any one part of the world at the lowest cost and in the readiest manner. Clearly you cannot have your cake and eat it as well, and his work is full of such inconsistencies. But, nevertheless, his fundamentals are sound, and if he had confined himself to stating these he would have performed a much greater service. But there are indications that, being employed by the Government,

he was anxious to serve them by making his principles conform to the views of the majority, and for that reason I regard his theories and conclusions as inconsistencies.

I make no apology for embodying some of his first principles in full in the essay in view of his work being out of print—some slight corrections have been made to the context of some, in order to give a clearer expression—believing as I do that it would be impossible to state the points more clearly or to improve upon the form of words used. Not only that, but I believe that in submitting the essay in its present form, in the greatest crisis of our national life, for the consideration of the public, I may be performing a national service.

In the second essay on the Foreign Exchange I have made an extensive use of quotations of an address given by Dr. Ewing Pratt, Chief of the Bureau of Foreign and Domestic Commerce, Washington, a copy of which he very kindly sent to me for consideration. The case he presents from the point of view of the United States is very sound, but as the address is not in print, and therefore not available to the public for reference, I have felt justified in presenting his main points, as they confirm the main theme I have attempted to develop throughout the essays and in "First Principles of Production." National Economics has become an exact science, and it is extraordinary to note how

closely the working conditions now being adopted by the United States follow those which Germany has rigidly adhered to. There are certain essential working conditions in National Economics, which a first-class Power must adopt if it is to safeguard its political prestige; these conditions are general in all cases, and we are no exception to the rule. But as a nation we go blindly on, believing that progress can be made without change: we love to adhere to our antiquated Free Trade system, which is, everything considered, nothing but an abstract proposition—it is negative in its results; and obviously you cannot build the concrete upon the abstract. In other words, you cannot build up a scientific system of National Economics unless you have the essential basic conditions to work upon. And as Free Trade is abstract or negative as a fundamental, it naturally cannot provide the essential working conditions.

The attitude of Free Trade adherents is as follows: Whatever may happen in the external world does not concern us. We will agree to no proposals designed for the nation's welfare and its efficiency or safety which conflict with the views of Adam Smith or Cobden. We care naught for the improved status of other external nations, even although, as a material factor to be considered, it did not exist in Adam Smith's time or in Cobden's time. Leave us alone. We prefer to live in the abstract, the negation of exact science. We prefer to live in the atmo-

sphere of the eighteenth century: we hate to be disillusioned.

If the following essays, therefore, will in any way enable the public to realise that all questions relating to the welfare of the State should be judged from the national point of view, and not from the standpoint of any political party or individual, I shall have been amply rewarded for whatever time I have devoted to the subject.

Let my readers remember that true Democracy is in the melting pot, and that our political leaders are responsible for placing it there. We have too many of the lawyer type of politicians, and not enough of the scientific and practical. The destiny of nations is now guided by the efficiency of its system of National Economics, and we must awake to the reality of that fact.

But Democracy as we know it in our beloved country is partly to blame for the position in which we now find ourselves to-day, or at any rate that section of it known as Trade Unionism. It has sacrificed the efficiency of the nation for its own selfish ends, and the numerous strikes that have taken place during the war is an indication of that fact. I am a great adherent of Trade Unionism as a force, but not of that system which bribes politicians with votes at the sacrifice of national welfare. They say that at the conclusion of the war we shall have a new Democracy. There can be no doubt

about that; but let us see to it that those demagogues in politics are removed out of harm's way who shall seek to pervert the material and economic welfare of the State for their own political purposes. If we do that we shall maintain and sustain true Democracy upon a basis that will justify itself.

It is gratifying to me to learn that the first edition of my book on "First Principles of Production," and the publicity it obtained, has been largely instrumental in bringing about the formation of a strong Industrial Research Committee, under the auspices of the Government, and that the latter have placed a sum of £30,000 at its disposal for the purpose. At the time of issue, most of the Cabinet and ex-Cabinet Ministers bought copies of the book. Our remaining business now is to bring about a reconsideration of the national policy with regard to the character of our imports and exports, in view of the important bearing it has on the question of National Economics.

J. T. P.

ON THE RELATION OF IMPORTS TO EXPORTS.

By J. TAYLOR PEDDIE, F.S.S.
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In discussing the working conditions in which British industry operates it is necessary to consider the relation of imports to exports, and to remove certain misconceptions which exist in many minds upon this subject. It is essential that the question should be discussed in order to clear the way for a wider and better appreciation of the views advocated herein free from political bias.

A great deal of economic literature has been written in the past on the relation of imports to exports of a highly irrelevant nature, plausible, but not convincing; the theories that have been evolved have, nevertheless, produced wrong impressions in many quarters, and our immediate business is to endeavour to put the question into a proper perspective.

The great difficulty one has to contend with in reviewing the question is the stubborn character of

the British mind; it seems reluctant to forgo old-fashioned views—especially in the economic field of activity—in dealing with questions which arise in the present period of time. It is perhaps due, as we have more than once indicated, to the fact that such problems are usually left to the framers of political constitutions to solve, thereby allowing them to become involved in the fortunes of political parties, and so creating the feeling, unjustifiably so, that they are questions of political importance. The whole system is bad, and must be re-cast, for it gives too much power, when all is said and done, to the unscrupulous politician on the look-out for votes. How the political situation is to be solved is for the future to decide, but for the present our duty is to endeavour to point out those things which are relevant, and have a bearing, directly or indirectly, on the welfare of British industry.

In confining ourselves to the discussion of matters that are relevant to present issues, we cannot, of course, dwell on the early history of our foreign trade beyond stating that it arose from the same cause, as stated by Mr. Bourne, which induced Solomon to send ships to Ophir for gold, and to bring home from thence the "silver, ivory, apes, and peacocks." But our principal reason for avoiding a discussion of the early history of our foreign trade is this, that the working conditions in which industry operates do not, as a whole, remain constant from

one generation to another. There is an old proverb which says "there can be no progress without change"; and we presume from this that so long as human activity is active and vigorous we need not expect working conditions to remain constant. References, therefore, to the origin and development of foreign trade in these essays would only tend to confuse the mind on the principles involved in the general working conditions in which we find ourselves to-day. In the running of an ordinary business, the proprietor decides the issues for himself in the light of his own experience; he does not ask what his grandfather would have done in similar circumstances. No, the present-day proprietor knows his present-day competitors and the conditions he has to comply with, and acts accordingly. As the State, therefore, is nothing but a force constituted of such individuals, we consider it should act in like manner.

For a considerable period of time we have been accustomed to see the total value of our imports exceed our exports, and why it should continue to be so puzzles the average lay mind. The average mind does not appreciate the relation of the one to the other, nor the circumstances which cause imports to exceed exports, and our immediate purpose is now to explain this phenomenon.

Trade in its earliest form must have consisted in the mutual exchange or barter of articles of con-

sumption possessed by one and needed or desired by another, and would probably take place first in supplies of food. It would early be discovered that a concentration of time and strength on the production of one class of articles would yield greater results than if each individual attempted to raise or procure everything that he needed, whilst diversity of taste, as well as circumstance, would fix the pursuits in which each would engage. One, being a tiller of the soil, would obtain the animal food he required by giving up a portion of the grain or fruit which he either found or raised by his labour and skill. At first, and in the absence of any imperishable substance as a medium of exchange, the transaction would be one of simple barter, and the standard of value or rate of exchange be determined by the time employed in the production of each of the articles in which they dealt. This would be truly payment in kind, and so long as the produce of a day's labour was given for that which bore a similar charge, perfect equality of bargains would exist, each party gaining more than he could obtain at the same cost, but neither more than he gave to his neighbour. Soon, however, disparity in bodily strength, in skill or disposition, together with the advent of seasons and other circumstances favouring one occupation more than another, would produce inequality, and though for a time the balance might fluctuate, ultimately prosperity would probably

attend the one, and adversity overtake the other. Then would come the necessity of the weaker to submit to the one in a stronger position, who, such is human nature, would not be slow to take advantage of the opportunities afforded by the other's need to exact unequal terms; and thus the element of profit and loss would be introduced. At the outset this would probably be confined to dealings in food or other articles of prime necessity, in which the buyer would be more or less at the mercy of the seller; but in those of more durable character and less indispensable to existence or comfort, the buyer would have the advantage. Since he need not purchase unless he willed, he would refrain until he got, or thought he got, the best of the bargain; but so soon as, through custom, habit, or overpowering inclination, the objects of desire became as good as real necessities, the one who sought to possess them would be led to yield to the demands of their owner; and thus the most laborious or skilled, whether of body or mind, as well as the least scrupulous, would cause every exchange to be to his advantage.

Then in process of time the most durable and the least easily obtained articles would become the representatives or standard of value. When jewels and the precious metals were discovered, these, as being the most attractive, lasting, and portable of known substances, would naturally become the medium of exchange, the recognised tokens of

value; and payment in kind would be transformed into what was equivalent to our present cash payments, more distinctly such when metals stamped as coin had a definite nominal worth attached to each.

Proceeding onward, the necessity, real or fancied, for one party to secure the food, clothing, or articles of utility and desire, although at the time destitute of the proper medium in which to make payment; and, on the other hand, the wish of the possessor to part with his goods, in the belief that deferred payment would yield him a greater return than a present exchange, would lead to his acceptance of a promise to be fulfilled at a future time, and thus purchasing on credit would take its rise.

Advancing a step farther, the owner of wealth accumulated beyond the power of personal employment, seeing those who desired advances—either under the pressure of poverty, or the belief that the temporary possession of what they had not themselves might gain for them more than they would have to repay—would be led to trust such persons with the use of his means on being secured a share in the profits arising from its application to purposes of manufacture or trade, and thus investment on loan or security would come about. Another form of this would be where undertakings were started too large for one or a few individuals to compass with their own labour or substance; these would join their powers to those of others in like positions, employing

partners or agents to carry on operations for their joint benefit, and in this manner partnerships and public companies would come into existence.

Now just as it is with individuals, so is it with nations; and this sketch of the various stages of progress, which must be familiar to all who have devoted thought or study to the subject, has been introduced to bring to view distinctly that which happens in the processes by which commerce is carried on. To see clearly the true bearing which imports and exports have to each other, we must personify each country, gathering all individual traders as it were into units, and disregarding all internal interchange of wealth or goods, just as we would the transfer of our purse from one pocket to the other, consider only that which takes place to or from the shores of each nation.

Looking at it in this aspect, we shall see that all the several processes we have described are being carried on at one and the same time in the business of each trading nation, or at any rate in that of our own; and that the true meaning or effect of the apparent balance between imports and exports depends upon the degree or extent in which either or all of these several methods prevail. In the infancy of trade, such for instance as existed at one time in Africa, so many pounds of beads, or so many yards of calico, was sent out to be exchanged for as much ivory or oil as the untutored natives

would part with. Here, although no money passed between the sellers and buyers, the money value of the goods that were sent out, together with that expended in transporting them from the place of production to that of barter, set off against the price obtained for those brought back, less the expense incurred of transporting them home, showed the true amount of profit; and were all trade of this description, the excess of imports over exports would be the nation's exact gain.

But in the present period of time, and in consequence of the great advance civilisation has made in recent years in Africa and elsewhere, all natural materials have a known market value, and it is only in very rare circumstances that a trader can now secure imports of natural materials of a greater value than the goods he may export.

The consideration which might have been given to this aspect of the question in the middle of the nineteenth century, and later, certainly cannot be carried forward to the twentieth century, for the reason that it has no influence of consequence in any consideration which we may now give to the relation of imports to exports. Other nations now compete with us on equal terms in the manufacture of articles of utility, and in many cases excel us, in all the markets of the world. Similarly, the power which other nations now possess in production *ipso facto* enables them to compete with us on equal terms

in the purchase, or development, of natural materials in the same markets.

Although in the first instance goods may be sold for money and others purchased with the proceeds brought back, one or more exchanges of goods or money may also take place at various places on the way home; or goods may be shipped from one foreign country to another, or from our Dominions or Crown possessions to foreign countries or vice versa without coming home. As a case in point, let us take the case of a shipment of tea direct from Calcutta to New York. The London merchant makes his profit on the shipment of tea from Calcutta to New York; the shipowner on the freight rates chargeable; and the banker on the bills of exchange; wherever that which comes home is wholly procured by that which goes out, the difference between the money value of the two will be the nation's gain or loss, and if the trade has been profitable, there will be an excess of imports. These are in truth payments in kind between the nations engaged in the transactions. Imports must exceed exports in value if the trading has been successful.

These are truths so simple and elementary as scarcely to need expression, were it not for the fallacy which pervades so many statements in which it is assumed that because imports exceed exports it necessarily follows that the one must

have been purchased with the other, and that the difference is wholly gain; at least so much of it as is not absolutely the produce of earnings or dividends abroad, turned from money into goods, and sent home in this state, instead of bullion or cash. Such writers appear to forget that in the present day the bulk of the trade carried on is not by means of either payment in kind or cash payments, but on credit. It is true that the individual credits are of short duration, and must be speedily balanced; but they may be, and are, balanced by other credits, not perhaps between the same parties, but between nations thus trading together; and it is utterly impossible to say, as between these, how long or to what extent such credit may be given or taken.

Once more, it does not follow that the goods thus transferred from one country to another are even paid for by credit. Of course, so far as each trader is concerned, they will be settled in one way or at one time or another, but the nations to which these traders belong may by means of other individuals be entrusting money to borrowers or be investing money in property or joint-stock undertakings, and if so, *all these must be taken into account before a true balance of profit or loss can be struck;* and therefore the apparent balance may in truth represent only temporary or permanent investments, or *the calling in of those made at times long since gone by.*

It follows, then, that an excess of imports is only satisfactory when it results :—

1. From a direct exchange of goods, those arriving being of greater value than those sent out to be bartered, and where such excess can be considered to be the profit on the transaction.

2. From money realised by the sale of exports, instead of being remitted in payment, being exchanged for goods which acquire additional value from transport home, always supposing that their value on arrival is beyond that of those whose proceeds procured their purchase. This, though somewhat differing in form, is really the same as the previous case.

3. From the money with which they are paid for being so much income accruing abroad, whether as earnings from labour, profits in trade, including bills of exchange, or dividends on investments.

Under all these conditions it is possible for a constant and growing excess of imports over exports to be shown, the extent of which is the indication and measure of national trading prosperity. To these must be added :—

4. When the excesses of goods imported are stored up for employment in the production of articles for export, such excesses being only temporary, and balanced by an excess of exports at a future time.

On the other hand, an even amount or an excess of exports will be satisfactory when the money they realise is beyond their value on leaving, and is :—

(*a*) Remitted home in cash;

(*b*) Lent on good security abroad;

(*c*) Invested in profitable undertakings or the acquisition of property in other countries.

The point we now have to consider at this stage is whether all or any of these modes are in operation in our present day methods of trading.

* * * * * *

The means are clearly shown by which an excess of imports over exports can add to the national wealth. If any of these principles are not effective and in operation, then we have to consider to what extent it may be impoverishing the national wealth acquired in days gone by, when competition for international trade was not so strenuous as it is to-day.

In some quarters doubts have arisen as to whether the rapid rise of our imports, prior to the war, was altogether compatible with the prosperity of our trade when unaccompanied by a corresponding

expansion of our exports. Some people asserted that the difference was more apparent than real, vaguely suggesting that the values on one side were subject to deduction and on the other to addition. Others held the view that the difference was due to the large profits on our trade, and the greatness of our income realised abroad and remitted home. The latter view is a contributory cause. But the broad facts were, that owing to the services which we rendered to the world in general in the following services, namely, finance, shipping, and insurance, we became a creditor nation and not a debtor nation.

London is the international money market, and it makes large profits in the form of interest, commissions, &c., in the discounting of bills, bills of exchange, foreign loans, investments, &c., &c. Similarly, British fire and life insurance offices are recognised to be the largest in the world, and they, including Lloyds, do a large and profitable foreign business. And similarly the services which our large steamship companies render to the world at large in the carrying of passengers and freight earn for them large profits. These services may be termed invisible exports. Therefore, before we come to consider the relation of the actual exports and imports, we have to realise that we start annually with a large credit balance in our favour in the form of invisible exports, which is liquidated by imports

of various kinds, by the importation of gold, or by other credits.

There is not the slightest doubt that the three industries referred to, *i.e.*, finance, shipping, and insurance, are mainly responsible for the surplus of imports over exports, and that under the Free Trade policy we have adopted the industries mentioned have prospered at the expense of home industries in consequence of the facilities afforded them for the free importation of goods of all kinds, including manufactured articles of utility, to pay for the services they render abroad. We cannot of course blame them for developing the opportunities which we, as a State, have placed at their disposal, and in making the most of them.

In the situation in which we find ourselves to-day, it is much better to be frank and state the essential facts, in order to bring about a more equal distribution of the wealth which we create by admitting the legitimate claims of industry, science, and agriculture for a better set of working conditions than exists at present. As we have shown in our article on "Finance and Industry," the great banking amalgamations that have been effected in recent years have for the most part been effected for the purpose of exercising greater control over our deposits, the facilities granted to customers, to minimise competition, and to increase profits. Those who control the financial

institutions in the City of London and elsewhere have long ago seen in which direction profits are most easily made at a minimum of risk, and it is for this reason that they have absorbed the smaller banks in order to gain a greater control and influence over our deposits, and have so altered the relationships which formerly existed between the country bankers and those responsible for the management of our industries. They wish the nation's capital to be kept as fluid as possible, so that they may use it in developing international finance and in bills of exchange.

It should be stated here, however, that the great banks, in pursuing this policy, have built up an enormous financial industry in London, greatly to the advantage of British credit, and, consistent with the legitimate claims of industry, it should on no account be disturbed; but the fact remains that it has displaced certain other forces of British industry, which should, in view of the enormous destruction of credit values, be re-established again in this country as the one and only effective means of creating new forms of wealth after the war. Some of the most important industries which should be re-established again in this country on a substantial scale are the aniline dye industry, the glass industry, automatic machinery, the silk industry, optical glass industry, margarine industry, typewriting machines, rifles and shotguns, pharmaceutical products, &c.

In a recent speech made in the House of Commons by Mr. Lloyd George on the subject of munitions of war, he stated that the British machine-tool industry was unable to cope with the demands made upon it for machine tools. He pointed out that it was essential for the country's welfare and for the successful consummation of the war that it should be developed on a more substantial scale by the Government, upon the ground that the more we satisfied our requirements from our own resources, the less gold we should have to export abroad to pay for munitions of war. In other words, he admitted that the efficiency of our national industries was not equal to the prestige which our nation occupies in the affairs of the world; that the German national industries have been equal to the demands made upon them for all kinds of munitions of war. What better proof have we than this, that of the two industrial systems employed, the German is the more efficient? And as the American industrial system is at least the equal of the German, that country must also be superior to us in that direction. Any system which is not able to stand the stress of adversity cannot possibly be a sound one in a time of prosperity. Any banker or business man will confirm this view as a principle.

In support of this we have only to read an observation of Sir Francis Oppenheimer's, H.M. Commercial Attaché for Germany, in his report to

the Government on the trade of Germany for the year 1913 (page 6), and which is as follows :—

"The rise of such works, although it has been greatly assisted by the modern developments of German banking, is chiefly due to the application of science to manufacture. These leaders have increased their profits by carrying the science of by-products to its utmost limits, and they have thus very materially reduced their cost of production. They are both indefatigable and generous where scientific research is concerned. The Emperor William Institute for the Scientific Exploration of Coal, which is to be opened in 1914, is the latest proof. A German society for the study of ores is similarly in course of formation. A succession of booms has made these mammoth concerns financially independent; in Rhenish-Westphalia some of them have ended by financially assisting the banks to which they had originally owed their own phenomenal rise. Their financial resources enable them to add new branches of manufacture to those they already control. They are continuing their steady process of concentration, each step of which leaves them further fortified."

And, if further confirmation is needed, let us turn our attention to the annual report of the Deutsche Bank for the year 1913, and observe the keen intelligence with which the bank management discusses the efficiency of German industry. On

page 1 of the report the management state that "Signs are not wanting that during the next few years the demand for capital on the part of German industries will be less than during the last decade. Antiquated methods have nearly everywhere been replaced by modern installations capable of meeting any competition. After this thorough modernisation of technical implements and machinery, there remains but the healthy tendency to progressively improve industrial establishments, and provide for the needs of Germany's population, which grows every year by 800,000 souls. The dividends paid in 1913 by German joint-stock companies amounted to approximately twice as much as the fresh capital they absorbed."

Just think of it. Can we see any such intelligent discussion of the industrial situation in the annual reports of British banks? Nor is this all. If we examine the annual reports of the Disconto-Gesellschaft and of the Dresdner Banks, we shall find the same keen interest and pride manifested in everything that concerns German industry and its welfare. For some reason or other, and as we have more than once stated, we have allowed ourselves to follow false economic doctrines; we have been quarrelling over the merits of Free Trade and Protection, forgetting all the while that, with the great advance made in the science of banking, it was as necessary to utilise this force as it was to utilise

the principles of organisation, science and scientific methods, for the better development of international trade. It is, we think, this want of perception that has made the German people look upon us as a decadent race; and perhaps they were not far wrong.

Let us now look at the great progress made by the Deutsche Bank since its inception in 1870, the date of the Franco-Prussian War. No comment is needed on the figures printed on the next page; they explain the position more eloquently and precisely than any words which can be found in the English vocabulary, and certainly reveal to us the new economic factors in all their nakedness and vigour, namely, banking credits, science, and organisation. Germany and America have adopted the new system, and it is essential that if we are to hold our own we must adopt counter measures.

Whilst on this subject we should not lose sight of the enormous expansion of banking credits which has also taken place in America through the operation of the Federal Reserve Act, which came into operation in the month of November, 1914. We deal more fully with this question in the essay on "Foreign Exchange" which follows.

American industry was in a very high state of efficiency before the declaration of war, and with the additional banking credits and facilities now afforded to it through the operation of the Federal Reserve Act for the development of international

TABLE SHOWING THE DEVELOPMENT OF THE DEUTSCHE BANK.

Year.	Cash, Coupons, Bills Receivable, Balances with Bankers, Stock Exchange Loans & Investments in Stocks.	Current Accounts and Deposits.	Advances secured by collateral Security and Merchandise.	Debtors on Current Account.	Bills Payable.	Syndicates.	Capital.	Reserve Fund.	Dividends.	Turnover.	Year.
	£	£	£	£	£	£	£	£		£	
1870	284,034	117,613	161,859	107,906	123,187	—	750,000	1,811	5 %	11,967,143	1870
1875	3,605,890	2,177,359	1,227,773	854,558	2,123,758	124,711	2,250,000	171,725	3 %	275,629,832	1875
1880	4,294,848	3,196,925	2,474,542	817,476	2,291,730	347,115	2,250,000	388,821	10 %	524,224,887	1880
1885	8,225,855	6,620,717	4,578,380	1,393,808	4,047,130	438,666	3,000,000	787,402	9 %	757,399,973	1885
1890	11,737,904	10,162,385	5,758,248	1,703,085	5,053,824	1,486,712	3,750,000	1,230,005	10 %	1,415,206,350	1890
1895	14,847,954	14,792,297	8,856,247	2,346,874	6,124,825	1,546,906	3,750,000	1,931,719	10 %	1,895,026,875	1895
1900	24,307,699	26,558,306	12,227,692	3,590.328	7,056,565	1,752,834	7,500,000	2,467,013	11 %	2,488,674,344	1900
1905	46,599,152	53,217,007	19,135,608	5,859,054	9,892,155	1,768,395	9,000,000	3,919,928	12 %	3,860,279,267	1905
1910	61,792,618	76,732,083	30,878,150	8,284,241	13,035,615	1,973,759	10,000,000	5,389,063	12½ %	5,605,067,407	1910
1911	58,798,988	75,432,339	32,254,600	9,252,374	12,762,611	1,869,734	10,000,000	5,500,000	12½ %	6,303,338,453	1911
1912	59,895,036	78,672,564	34,709,033	10,418,316	15,612,316	2,470,937	10,000,000	5,625,000	12½ %	6,608,062,553	1912
1913	61,150,704	79,002,289	32,000,921	10,760,540	14,203,940	2,673,124	10,000,000	5,750,000	12½ %	6,460,035,841	1913

trade, plus the millions of money we have been spending with it for munitions of war, we may be sure that it will attack the international markets with greater vigour when normal conditions return at the conclusion of the war; and we do not think we are over-stating the position when we declare that our greatest competitor in the international markets of the world in future years will, in all probability, be the United States of America. This knowledge will be gratifying to most of us, seeing that she is of our own kith and kin.

But the whole position is one that requires the most careful consideration of all concerned.

It is estimated by Dr. Edward Ewing Pratt—Chief of the Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C., who very kindly forwarded to the writer a copy of his address delivered at the annual meeting of the Californian Bankers' Association at San Francisco, May 27, 1915—that at the outbreak of the European War the United States owed no less than £1,500,000,000 sterling to Europe, the largest portion of which was distributed among the following nations as follows :—

England	...	...	£800,000,000
France	...	...	200,000,000
Germany	...	...	250,000,000
Holland	...	...	130,000,000

The above indebtedness was in part off-set by

loans made by the United States to Europe and by certain European securities which were held by them. The total indebtedness of the United States to Europe at the beginning of the war was, nevertheless, set out to be no less than £1,200,000,000. It will be seen, therefore, that the United States of America occupied the position of a debtor nation in international finance instead of a creditor nation.

In consequence, however, of the vast sums which are now being spent in that country for munitions of war, it may safely be assumed that a large portion of this debt will be wiped out.

We are aware of the argument that is frequently used that the United Kingdom is not large enough to cope with the world's demands for finished manufactures, and that before the war we had as much as we could do to cope with the orders that were on hand.

In answer to this observation, it must be remembered that a great part of our energy has in the past, and certainly in the present, been used up in the construction of ships of war and in the manufacture of munitions of war. It may safely be assumed, therefore, that at the conclusion of the great war there will be sufficient war material left to last us for a generation or two, and that employment will have to be found for the labour and a use found for the plants that were formerly engaged upon this class of work. Apart from this consideration, how-

ever, it has long been generally recognised that the productive capacity of our workshops is lower per man than in Germany or America. It is attributable to two causes, and these are :—

1. The trade union limitations placed upon their members as to the output, which is known in this country as the "ca canny" policy.

2. The want of efficiency in most of our factories, both in regard to design and in workshop equipment.

A sufficient use is not made of science, scientific methods, or automatic machinery. It is for this reason that we are most deficient in those industries more directly associated with the applied arts and chemistry.

But do not let us fall into the error of blaming the British manufacturer for this condition of affairs; the main fault lies with the State, which has failed to appreciate the First Principles of Production. Having regard to these facts, therefore, and in the interest of the future welfare of the State, it is essential that, at the conclusion of the war, we insist upon the State, with the assistance of a Ministry of Industry, introducing a better set of working conditions, which shall enable :—

(*a*) British manufacturers to replace antiquated methods by the installation of the most modern plants and equipment available with a view of increasing the productive capacity of each man.

(*b*) The British trade unions and workmen to realise that the value of labour is not determined by the wages each workman receives, but by the services rendered by each workman in return for wages received.

The moment these two aspects of the question are appreciated to the full by all concerned, we shall then be able to compete on equal terms with Germany and America.

Labour should remember that in consequence of our insular position we are not in a position to grow sufficient food to satiate our wants, and that our ability to command food supplies from abroad largely depends upon our ability to produce efficiently and sufficiently per individual for export. And that the installation of modern equipment such as is advocated will not only assist in making the day's work more of a pleasure, but by reason of the improved environment, will also facilitate an increase of output in the manner required. Let us remember Macaulay's words :—

> "As we wax hot in faction,
> In battle we wax cold;
> Wherefore men fight not as they fought
> In the brave days of old.
> Then none were for the party,
> Then all were for the State;
> Then the great man loved the poor,
> And the poor man loved the great."

The successful trading of a nation is governed very largely by the same broad principles which govern the conduct of a successful business. Trade will only come to those who lay themselves out to capture it—profits are the reward of enterprise—and we must not cavil at the success of competitors who succeed in diverting our trade; on the contrary, we should admit the principle and live up to it.

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The very financial strength which has for a time furnished us with the means of undue expenditure on social and other pleasures has in several ways led to the loss of our industrial power, and, *ipso facto*, of the capacity to sustain that very financial strength and national prestige. In other words, there has been a lack of cohesion between finance and industry in this country.

The increased revenue and capital values which we, as a nation, have earned on our original investments abroad, has been responsible for the majority of our countrymen during the last sixty years attaching certain virtues to our system of Free Trade, which has in reality, especially in a time of crisis like the present, destroyed our capacity for resistance on anything like the basis of a modern first-

class Power. Not only that, but the financial facilities which we have in the past afforded other countries, including Germany, in the London International Money Market for industrial and other purposes has enabled these other nations to compete, and to excel us in many cases, in producing articles of utility for their own necessities and the markets of the world; and in the case of Germany, particularly, has enabled it to maintain an army and navy upon a prodigious scale for the domination of the world and our own extermination. In other words, we have been burning the candle at both ends.

Now this is just what we as a nation cannot possibly afford. Our country only grows half the food which our people consume, and therefore for our continued existence it is absolutely essential that we should produce something else, in addition to pure financial operations, wherewith we may purchase or take in exchange from other nations the food we cannot, or to a large extent do not try to, raise for ourselves. Herein again we stand in decided contrast to the United States, which grows more food than it can consume. Were it blockaded or shut out from access to the products of other nations, the prices of provisions would fall, and her people might be all of them better fed than even now they are. Were England isolated, the cost of everything would rapidly rise, and so soon as the accumulated stores were exhausted, half her inhabitants would starve.

Again, we may say that the necessity which compels imports to exceed exports is the very reverse of prosperity; *the ability which permits exports to exceed imports is an exactly opposite condition to one of adversity.*

If, then, these be truths—and that they are so it seems impossible to deny—is it wise to hide them from view, or to cavil, as some do, at those who strive to invite public attention to their existence? Like the ostrich who hides her head in the sand, we may fancy that they are best put out of sight, but the very attempt to deny their existence only serves to magnify their importance to others, and to arrest remedial attempts by ourselves. The patient who will not admit that he is ailing, and the physician who ignores the fact that his disorder is serious, are alike answerable if recovery is protracted or rendered impossible, whilst those who are not afraid to acknowledge the presence of disease, and boldly adopt the most likely measures for restoration, are those who also manifest the greatest confidence in the strength of the sufferer's constitution, and thus help best to maintain it unimpaired. Let us, then, consider what are the steps to be taken for the preservation and renewal of our national vigour.

Considering the important bearing which a right understanding of this question must have upon the measures necessary for the preservation or restoration of our national life and prosperity, it is not sur-

prising that some thoughtful minds have been driven to a consideration of the best means for the attainment of these objects. Rather, is it to be wondered at that so few appear to think it of due importance, or are disposed to see that a very decided course of action is needed. It would seem as though the influx of prosperity in former years has so intoxicated all those who were drinking in its copious draughts that they could not dream of reverses or listen with patience to any who raised the voice of warning.

It cannot be that the enterprise, the skill, and the industry which have created the position to which we have reached will fail us in the present time of stress. These national attributes will, if still maintained and rightly exercised, sustain and guide us until the darkness shall pass away, and the sunshine of prosperity again overspread the land. But before that can happen we have much patient endurance and active exertion to pass through. It will no longer do to act upon the maxim, "Take care of the imports, and let the exports take care of themselves." This did well enough when the world was pressing upon us to supply its wants; not now, when we have to press our wares upon the world.

The first effort we have to make is one that scarcely needs to be suggested, for it will be forced upon us by stern necessity after the war. Shortened wages for the labouring classes, and too often the absence of any wages at all, will enforce economy in

the use of the necessaries of life, and entire abstinence from many of the luxuries and enjoyments which have gone far to swell the amount of our imports. Diminished profits in trade and want of employment for many will teach the same lesson to the middle classes, whilst failing incomes and smaller returns for the use of capital will place the upper ranks in a similar position of necessity. Thus shall we lessen the payments we have to make for our imports, and also reduce the price of many articles of consumption for which, under the influence of extravagant expenditure, we have raised the charges to an unwarrantable height. It will also be impossible to maintain the shortened hours of service which have been introduced into many employments, or to be satisfied with the insufficient amount of work performed in the hours thus shortened.

There is the unavoidable evil attendant upon all measures of retrenchment, and the concentration of labour amongst fewer hands, that they throw many persons in all ranks out of employment, and also bring many to seek for profitable occupation of their time who have heretofore had little to think of but spending time, money, and strength in the mere enjoyment of life. Productive labour and capital have been overweighted with the unproductive members of the community, whom they have had to support; and this observation applies equally to the Civil Services.

Competition, so far as it stimulates industry and develops skill, or the talents which produce something that shall add to the general stock, is highly beneficial; but competition which has for its object the obtaining of the largest share of that which has been already produced is baneful in the extreme. If there is a railway to be made, or some public undertaking to be started, promoters, stockbrokers, solicitors, secretaries come first; then landowners, contractors, and manufacturers all rush to the front endeavouring to secure the greatest share of the money to be expended, rather than to diminish the outlay by the shareholders. If there is a public office to be filled or a charity to be bestowed, a crowd of competitors waste their time in struggling who shall obtain the prize. Thus has it come to pass that the cost of everything has been swelled, the expense of division increased, until the difference between the outlay, whether of time or money, on the first production has been far below what it ought to have been from the price paid by the ultimate consumer or person who has enjoyed the benefit. Notwithstanding all our contrivances for saving labour, all our intense devotion to business, all our exercise of skill, scarce any object is attained or accomplished which has not occasioned greater outlay between its first and final stages than was really needed. Too many hands have been employed upon it, to each of which it has paid toll rather than received help,

and a feeling has pervaded a large portion of all classes of society that they were to subsist upon appropriating that which others had produced, rather than that which their own efforts had created. There is everywhere a superabundance of producing power which will have to be placed in profitable employment. The economic situation has had much to do with enhancing the cost or lessening the volume of our actual exports of manufactured articles of utility; this might be borne so long as we were increasing the ratio of our exports to imports, for its weight fell largely upon the foreign consumer; but, with rivals running us so closely in the race, they will no longer consent to help us in bearing it.

It would be unreasonable to expect that, however willing the nations of the world might be in their infancy to depend upon this country for their manufactured goods and the articles of luxury they choose to consume, they would continue to purchase them from us by a larger amount of labour bestowed upon the raising of food and raw materials than we bestow upon the finished articles they take in exchange. We have had the honour of being the pioneers in arts and manufactures, and have had our reward in the wealth we have acquired. It is now the turn of other nations to follow in our steps, at least to the extent of supplying their own wants; and this they are sure to do as they increase in numbers and knowledge. We can have no hope of

retarding this progress, but we may repeat the process by which in the last century we succeeded in advancing our interests, namely, by producing efficiently, and assisting in the development of those countries whose resources are as yet undeveloped, particularly our own Dominions, Colonies, and Crown Possessions.

Not only have we been very backward in developing our national and imperial industries on the highest possible basis of efficiency, but we have allowed foreign countries, and Germany in particular, to control those industries concerned in the development of natural materials, namely, zinc, lead, spelter, copper, tin, aniline dyes, pharmaceutical products, palm-kernel oil, &c. If the natural resources were not to be found in our own territories we should not have much to say; but when we literally control these resources and allow them to be developed by foreigners, have we any right to call ourselves an intelligent race?

The development of natural resources is an industry which is mainly conducted on the high seas, and does not require the same space and labour as is required in a manufacturing business. These natural resources can be dealt in without even being imported home, but the chief point to be remembered is that from the business standpoint they are more wealth-productive than finished manufactures; the reason being that they are more easily controlled

than the industries engaged in actual manufacture. The materials which are derived from natural material must be bought for use in actual production, and that being so, those who control them can easily obtain their asking price.

In this connection the following statement recently made by Mr. Hughes, the Attorney-General in the Australian Commonwealth Parliament, on the second reading of the Enemies' Contract Amendment Bill, will be of interest :—

"Most, if not all, the mining companies of Australia, said Mr. Hughes in his introductory remarks, had entered into contracts for the disposal of their products up to 1921. Many of the contracts contained clauses providing for suspension in the case of war and revival afterwards, the period of the war being added to the original term, so that if a contract was originally arranged to expire in 1921 and the war lasted three years, the term of the contract would be extended to 1924. The value of the annual output of base metal in Australia was estimated at not less than £13,000,000, and over this Germany's control was almost complete before the war.

"Such uncertainty and doubt existed among the companies in regard to their contracts as to affect not only their present operations, but seriously to hamper their future development.

"The position in which they are placed, indeed, threatens to paralyse every effort, not only to develop their business but to divert trade from Germany to Britain and its Allies. They are unable, for example,

to enter into any contract with anyone but the agency through which German influence operates for the sale of their products. Naturally, manufacturers in Great Britain are unable to enter into contracts for the purchase of such products. Yet before a group of capitalists can be induced to invest £4,000,000 or £5,000,000 in the manufacture of spelter, or the zinc of commerce, they must be assured of an ample and regular supply of the metal they require. That is precisely what cannot be assured to them under existing conditions."

The companies of Australia and the capitalists of England, Mr. Hughes went on to explain, were unable now to come to the point where it was possible to divert to British or friendly channels the metal which flowed sometimes to Germany, to Belgium, to France, or to other countries, the lion's share of the profits from which went to Germany.

"They are unable to do so not only because of the contract relating to the supply of metal, but also because they have contracts which give the exclusive selling agency to one firm, which for all practical purposes is German. We may now deal in detail with the extent to which the control over lead, zinc, copper and tin by German influence goes. The position before the war was this: Practically the output price and sale of all lead was governed by the Lead Convention; zinc by Aaron Hirsch & Sohn, Beer Sondheimer & Co., and the Metallgesellschaft; copper by Aaron Hirsch & Sohn. Upon the outbreak of war the Lead Convention was reconstituted, nominally without the German element, but to all intents and purposes the control of lead to-day is exercised by the same people

as before the war. The same element is dominant, and it is through that channel, and that channel alone, that every pound of lead is purchased by the Admiralty and the War Office."

Mr. Hughes explained that the control of the metal industry originated through the operations of the firm of Merton, of Frankfort-on-Main, whose ramifications were world-wide. It is represented in almost every civilised country, and its methods are typical of the German character.

"This German group have their headquarters at Frankfort-on-Main, and exercise power in every country in the world. They have daughter companies—offshoots—in America, Africa, and Australia. The Metallgesellschaft, which is one of the first forms in which the Merton combination expressed itself, dominates the market in America, Africa and Australia through daughter companies. The Australian Metal Company, for example, under which name the German group operates here, is a company registered in Australia. This brings me to what I mentioned at the outset that in form we have not to deal only with contracts between an alien enemy and a British subject, but with contracts between persons who are nominally British subjects—between a company registered in Australia and another company also registered in Australia. The Australian Metal Company, to all intents and purposes, is the Matallgesellschaft, and the Metallgesellschaft is a German combination working in conjunction with the Merton group."

The moral to be derived from the foregoing is this: that we ought to have had a Minister of

Industry and a group of industrial banks co-operating with our industries in developing our resources of natural materials. Our present group of banks will not make advances against natural materials—they are not laid out for that class of work—hence the success of the Germans in the direction pointed out by Mr. Hughes.

As we have indicated in the earlier part of this article, in a world of keen competition the weak must give way to the strong—as with individuals so it is with nations—and it should now be our immediate business to see to it that our national and imperial interests are strengthened and adequately safeguarded.

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An increasing population and thriving trade absorb more land for the erection of buildings, the means of transit, and open spaces for recreation, all of which must be obtained at the expense of the food the land can bring forth. There is thus every reason to wish for an increase in the extent of surface employed in raising food, even if it should be obtained by the reclamation of that which is waste; there is, for instance, plenty of room in Ireland for an extension of this policy.

It is yet open to doubt whether high farming and improved machinery or modes of cultivation will hold their ground against the vast tracts of unoccupied land being every day rendered available in other countries, especially the Dominions and Colonies, and the increased facilities for bringing their produce to our markets. If they do, it will almost certainly be by the production of such foods as need to be raised near at hand, which are just those that require the larger space for growth in proportion to their food-value.

The next stage, then, in our investigation must be into methods by which those for whom our own soil fails to produce the needful food are supplied with this and the other necessaries of life, and how far those or other methods are likely to continue sufficient for the present population, and to keep pace with its future growth.

It clearly matters little towards this end in what manner individual labour is employed, so long as its purpose is to procure what is required, and that this aim is realised. A ton of coal or of iron, though useless in itself as food, is of equal value to a hundredweight of wheat or of meat, so long as the one is interchangeable for the other, but loses all its value when this ceases. In the earlier stages of our commercial history, this country not only produced food enough for all its inhabitants, but had some to spare wherewith it could procure the various

articles it chose to obtain from abroad; and up to the period when food produced or retained at home sufficed for all who had to eat it, it was not their existence, but their comfort, their welfare, or their wealth which depended upon the continuance of the nation's trade. From the moment when it became necessary to make use of foreign food, it also became essential that our foreign trade should be made, and its extension with the same rapidity as the population increased could alone save us from starvation.

We are essentially a productive and commercial nation; we have been the manufacturers for the world, but are every day becoming less exclusively so since others have discovered that they possess the same sources of mineral wealth as we do. They have increased in numbers and grown in wealth; they have learnt by our experience, profited by our skill, are copying and improving upon our processes, and are determined no longer to be dependent upon us for that which they can produce for themselves.

The Prime Minister and the Chancellor of the Exchequer recently received a deputation of leading bankers from the City of London, which urged the importance of greater thrift in the public departments of the State, and Mr. Harold Cox, a member of the deputation, raised the question of the taxation of certain of our imports.

The Prime Minister, in referring to this aspect of the question, in his reply suggested that it was

not an easy matter to secure revenue and check imports and consumption. His point was not quite clear to us, although Mr. Harold Cox pointed out to him that alternatively you got one or the other, and that they were both of value.

If a tax is put on imported manufactured articles of utility, its object is to check the volume imported, in order that they may be produced at home, and it is difficult to see that a tax on imports of that kind can be of a revenue-producing nature as a tax. A tax, however, on natural materials, wines, champagne, and tobacco is revenue-producing as a tax, because these articles cannot be produced by labour in this country—they are largely the product of Nature. Such a tax would not only be revenue-producing, but it would also have a tendency to check the importation and consumption of all forms of luxuries by putting up the price.

Whenever it is possible to bring British labour into competition with foreign labour in the manufacture of articles of utility, a tax on the imports of these will not affect prices, for the reasons we have already stated elsewhere. But it does have this effect, that in consequence of the increase of our national productive capacity which it brings about by restricting imports, the existing revenues of the State are stimulated at their source, such as income tax, &c., on account of the freer circulation of money which it creates throughout all phases of

national life by the larger distribution of wages and dividends.

The further benefits accruing in the adoption of this policy is this, that with the increase in production, we can afford to sell cheaper, as our standing charges are spread over the larger units of goods produced, thereby ensuring a minimum cost per unit of goods produced. We hope we have made the point quite clear, for in view of the great destruction of credit values, and the large debt we have created abroad, in consequence of the war, it will be more than ever essential that we should endeavour to increase the ratio of our exports of manufactures to imports.

Not only that, but in order to regain or retain as much of the capital or credit values spent on machinery and in other directions in the manufacture of war munitions, it is desirable that we should alter the character of our imports, so that our demands for finished articles of utility, natural materials and food products, shall, as far as may be possible, be supplied from our own national energies—we should not import more of these than are absolutely essential to fulfil our requirements if we are to stimulate the existing revenues of the State. Concurrently with this policy, however, there should be established in this country industrial banks, having for their purpose the development of British industrial trade abroad, somewhat on the lines of

the Deutsche Bank of Berlin. Various schemes are already in process of development with this end in view, and more will no doubt be heard of this aspect of the question at a later stage. But it is undoubtedly the right policy to be pursued in order to force an increase in the ratio of our exports of finished manufactures to imports. It is in this direction only that we can hope to evolve measures neutralising, as far as may be possible, the adverse influences of the war.

Germany has evolved the system of developing foreign trade through the influence of her banks with marvellous effect. She has accomplished more in this direction by her scientific methods of banking, in a shorter period of time than would have been possible under our system. Not only that, but, judged by results, her industrial resources have been equal to the demands made upon them by the war, and have defied the four countries surrounding her. Who shall deny, therefore, that of the industrial systems, *i.e.*, British and German, the latter has stood the test of war with greater efficiency than the British and their Allies? We have spent millions upon millions of capital with no hope of recovery in the endeavour to equal her capacity and to meet the demands which war has suddenly thrust upon us. The test came upon our industrial system, and it was found wanting. It is an expensive price to pay for the false economic doctrines we have hitherto pursued.

German methods may not be applicable in all particulars to our national life, but there is a great deal in them and in the spirit from which they emanate that we should study and embody in our everyday industrial life without delay. It should be borne in mind that after the war German character and efficiency will always be there, knocking at the door of our economic life at each available opportunity, and that, knowing them to be what they are, we must needs adopt such modifications of our economic life as are essential to counteract their activity. We should not forget that the total value of German imports and exports for the year 1913 were only about 100 millions short of our own total trade. Yet it has taken us over a century, with the added advantage of a great Empire, to reach our present position, whereas Germany reached her eminent position of 1913 practically in the short space of forty years.

We care naught for the criticism which may be directed against the political life of Germany and its absolute form of monarchy—let us admit these evils; but take them away, and there is much virtue to be found in what remains.

Free Traders we know attribute the great excess of imports over exports to some great virtue attached to their Free Trade policy. It is a false assumption, and the sooner they dismiss it from their minds the better will it be for the country, and particularly

Ireland; for the reason that, if we are to remain a great European Power, we must get to work to introduce a new set of working conditions having for their object, in view of the German menace, the maintenance of a larger population. Ireland, about the middle of the last century, had a population of 8,500,000, but now it amounts to slightly over 4,000,000, and there must be some reason for the great decline. One of our great objects must surely be to see Ireland maintain a population of 10,000,000 to 15,000,000 souls, and it can be done if we are willing to apply our minds to the subject, and alter the character of our imports. The question we must ask ourselves is this, viz., if the relation of our imports to our exports is sound in practice, why do we find it difficult to maintain a population beyond 48,000,000 souls in Great Britain and Ireland? Does the answer not lie in the fact that we have sacrificed industrial, scientific, educational, and agricultural claims in the pursuit of antiquated political ideals? Chasing the shadows and not the substance? Are we not inclined to measure the value of our import and export trade by its magnitude —we like to see large figures—forgetting all the while that the prosperity of a country depends more upon the condition and efficiency of its internal than upon its external trade; and that it is possible for the internal trade of a country to render the greatest part of its external trade unnecessary, and

yet be as wealth-productive as the other? By way of example, let us take the case of France. We saw her wealth in the ease with which she provided for the German indemnity in the Franco-Prussian War of 1870, and in the rapidity with which she recovered from disasters enough to have paralysed and destroyed nations even stronger than she. Her trade was not large, though with a population less than half that of Russia, she had double her trade, but although her population exceeded that of the United Kingdom, her trade was less than half of ours.

She owed this in great part to the fact that she was able to produce most of the food and other necessaries she consumed, and that she had not, as we do to a very large extent, to seek her food supplies in other countries. Why we should have to do so as extensively as we do is another matter.

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The needed explanation, then, of the phenomenon manifested in the growing expansion of our imports beyond that of our exports is simply this—that with a prosperous state of trade and manufactures, the mouths we have to feed and the

food required to feed them have increased beyond the powers of our own soil to provide for; and that other nations have been growing in intelligence, wealth, and manufacturing power, and so in the capacity for supplying their own wants, without increasing, but rather decreasing, their demands upon those products of our labour by which our ability to purchase food from them is largely maintained. Our necessities have been multiplied by continuous seasons of diminished produce from our own soil, whilst agricultural operations have been progressively advancing abroad; thus, concurrently with lessened crops, there has been a lower revenue with which to remunerate our own agriculturists, and they have had less to expend with the manufacturers for the home trade. That we should have been able thus long to stem these adverse currents does, indeed, manifest the progress of our resources, and the accumulations of our past prosperity in trade; but it does not at all indicate that we may not now be expending more than our income, or at least ceasing to make those accumulations which have contributed to our wealth and given us the commercial standing which we still retain. Neither does it forbid the supposition that if that wealth and that supremacy in trade and manufacture is to be preserved, we must retrace our footsteps, in some directions, and advance with greater boldness and rapidity in others.

One feature in the present aspect of affairs appears to have been lost sight of, or not, at least, sufficiently appreciated—namely, the extent to which the wealth, not only the floating, but the realised capital we have—may be held as bankers rather than owners, and how large a portion of our trade we carry on as agents rather than principals, earning commissions instead of realising profits. Our traders have been much too fond of the doctrine of buying in the cheapest market and selling in the dearest—we have too many traders and too few producers.

What then are the steps we must retrace? Clearly those of individual and national extravagance, of deterioration in the quality of our manufactures, and the honesty of our trade—of undue exaltation of wealth, and dependence upon skill or smartness in obtaining the larger share of that which already exists, rather than upon industry and perseverance in creating and preserving, not money alone, but all that really adds to the wealth of the world. What, too, are those in which we must advance? As individuals we must attach more value to honest labour, whether of the hands or the brains, employed in actual production, or the improved use and lessened destruction of that which labour has already created, and must use the hours reserved from laborious occupation as opportunities for real recreation, not for indulgence in enervating pleasures or exhausting pursuits.

As manufacturers we need to lessen the cost of distribution, to discourage costly rivalry, to increase facilities of transport, and to seek out new openings for the sale of our goods and the bringing home of natural materials, whether as food or for manufacture. As employees we should cease from ruinous strikes and all interference with the devotion of time, strength, and talent wherever they may be profitably employed. As capitalists we must cultivate those close and cordial relations with labour through which alone money can be made to increase. As bankers we must assist in the development of industry at home and in the export of manufactures abroad, for which special industrial banks are needed; and finally, as statesmen we must develop national and imperial resources, encourage industry, science, and education, and make all dead values remunerative. These aims can best be accomplished by placing a restriction upon the free importation of manufactured articles of utility, with a preference in favour of our own Dominions and Colonies, and in giving consideration to the question from a business point of view. Let politicians cease from the practice of making it a party question, and from perverting it to their own ends for the purpose of catching votes. It is a scientific question, and as such it can be measured if it is the general wish that it shall be done. Should any variation be desired from the known result in order to grant preferences

to other States, let it be considered from the standpoint of business—*i.e.*, what benefit, ultimate or immediate, shall accrue to us as a State from any concessions that may be conceded. But considerations of this kind should be left to the Minister in charge of a Ministry of Industry, just as we do in the case of the Foreign Office.

FOREIGN EXCHANGE—
THE BILL OF EXCHANGE.

Definition of Par of Exchange.—The par of exchange between two countries consists in a common basis of value, without which bills of exchange could not be drawn between contracting parties. The nations have thus found a medium of exchange in bullion—*i.e.*, gold or silver, or in both. For instance, as between London and New York, the par of exchange is fixed at 4.86.65. The number of grains of gold contained in the British sovereign is equivalent to 4.86.65 dollars in the gold coinage of the United States; that rate can be obtained at the New York assay office for every English sovereign of full weight, which rate may, therefore, be termed the par of exchange as between those two centres.

The same formula applies also to other centres, such as Paris and Berlin. The point will become clearer at a later stage.

In order to appreciate in all its aspects the relation of imports to exports more clearly, it is necessary to discuss the influence of the foreign exchange and the bill of exchange upon imports and exports.

Prior to the declaration of war it used to be freely discussed that in the event of a great war London

would lose its pre-eminence in international finance. Personally, we were not of that opinion, for the simple reason that so long as it is necessary for us to purchase abroad a large part of the food we consume, so long will the bill of exchange on London be preferred to most others. And, *ipso facto*, so long would London retain its pre-eminence in that particular class of business.

We are essentially a manufacturing nation, but the point we have more than once endeavoured to emphasise is this : that in order to sustain our ability to purchase our essential requirements abroad in the form of foodstuffs and natural materials, it is necessary for us to be able to manufacture efficiently and export on the lowest possible basis of cost.

It will be seen from this observation, therefore, that the London Money Market has to rely in a great measure upon the ability of our industries to export in order to sustain its strength in full activity. This aspect of the question has not, we are afraid, been considered in its full bearing by those concerned.

America is practically self-contained : it produces all the food it requires to sustain its industrial population. Germany is practically self-contained, as it produces about 85 per cent. to 90 per cent. of its requirements.

In the case of Great Britain, its farms are in Canada, Australia, India, the United States, the Argentine, &c., and whilst it may be considered a

great disadvantage in having to purchase a large part of her food requirements abroad, from the national point of view, it has its compensating advantages in that it enables her to maintain a large mercantile fleet plying the various seas in bringing home what she requires, and in taking abroad her manufactures for sale to liquidate the cost of our food bill and natural resources, and possibly to cover investments. These transactions create a financial business which is the backbone of the London Money Market, and which it is not slow to take advantage of; it, of course, adds to this other foreign transactions; but it nevertheless demonstrates in a very decided manner how closely British finance has to rely upon the success and efficiency of British industry in the successful pursuit of its financial business.

It seems to us that a bill of exchange issued to cover the cost of food or natural materials imported to this country is a much better security for the London banker than a similar bill issued, say, to cover a shipment of goods from New York to China. The banker can, it is true, make his profit in either direction, but it would be more patriotic and beneficial to our national industries if he were to diminish the ratio of our invisible exports, and endeavour to increase the ratio of actual exports by helping British industries to export abroad. If the banker employed his funds more in developing home indus-

tries he would help to find profitable employment for the population, and help to get over many of the labour difficulties we have to contend with. Not only that, by adopting the policy suggested he would be encouraging the manufacturer to spend his spare capital in increasing the productive capacity of his plant by installing modern equipment, which is another way of stating that he will enable our national industries to sustain our national prestige, both from the military and political points of view.

To emphasise our point more clearly it is only necessary to point out, for instance, that in 1912 Germany exported to the Argentine goods of the value of about £13,000,000 (space forbids us to go into detail), and that she took from that country very much less than she exported. Who paid the difference? Perhaps a bill of exchange on London covering the cost of the food bought by Great Britain. There seems to be very little doubt, judging from the details available, that this is the correct interpretation. German manufacturers obtained the benefit of the exchange.

In this particular case proof is again shown of the need of closer co-operation between finance and industry in this country, and for both these forces to adopt a national policy which will sustain both interests. The labour interest is involved in that of industry, so that if we discuss the one, we discuss the other.

In the previous article we discussed the early history of foreign exchange, which began with the simple form of barter, but with the advance of the science of banking there came as a later development the bill of exchange, issued by various nations to cover the purchase and sale of goods abroad, and also to cover finance operations.

Mr. Hartley Withers, in his admirable little book on " War and Lombard Street," describes a " bill of exchange as a bill drawn by the manufacturer or shipper in a foreign country against the importer in this country to cover the cost of the payment of the goods he may have shipped. It is usually drawn payable in two, three, or six months after sight, and sight means the date on which the bill, having arrived in London, is presented to the acceptor for acceptance.

" The bill is usually sold in the country of its origin to a banker or dealer in exchange, who forwards it to his agent in London, and after it has been approved and accepted, it is discounted by the agent on behalf of the foreign banker at the current rate of discount.

" When the bill falls due it has to be paid, either by the importer of the goods if it was drawn directly on him, or by a bank or accepting house which the importer has induced, by paying it a commission, to accept the bill on his account, and so produces a bill that is ranked as first class, and can be sold

more easily. During the two or three months of its currency the bill has thus provided credit for the importer, giving him time to sell the produce that he has imported, and has at the same time provided a very nice liquid investment for bankers, who always hold a large number of bills of exchange among their assets.

"We have seen that most of the bills drawn on London from abroad are drawn on banks and financial houses. This is often so even in the case of bills drawn against goods shipped to England, because the credit of the importing merchants does not, as a rule, stand so high as that of the banks and great houses, and so the merchants pay a commission to the banks and financial houses for accepting bills on their behalf, and thus are enabled to pay their customers abroad with a bill that is more readily sold. In the case of bills drawn against goods going from one foreign country to another, or of finance bills drawn against no shipments of goods any-whither, the banks and finance houses (who are often called accepting houses) from their doing this business are nearly always the acceptors, and so are liable to meet the bills when they fall due."

The foregoing is an admirable description of the function of a bill of exchange, and for the reasons we have already shown, owing to the number of bills that are issued abroad on Great Britain to cover the cost of the shipment of food supplies, natural

materials, and manufactures, and also owing to the fact that Great Britain always pays her debts in gold, it is not over-stating the case to say that the principal dealings in bills of exchange abroad consist of bills drawn on London. That this is so may be gauged from the fact that there are many transactions between countries which have no direct exchange relations which are settled by bills or cheques on London.

It is also well known that foreign banks, like the Banque Nationale de Belgique, the Netherlands Bank, the Bank of Italy, Austro-Hungarian Bank, and others, always hold among their liquid assets substantial holdings of bills on London. These banks do this because they can always rely upon Great Britain paying her debts in gold, consequently they look upon their bills on London as gold; it is chiefly owing to this fact that the rate of exchange on London has come to be regarded *par excellence* the international rate of exchange.

The bill of exchange on London has come to be regarded as the currency of the world; it represents gold, yet can be handled with much greater facility; it is preferred to gold because it can be transferred with greater rapidity, with greater certainty, and with infinitely less risk than would be involved in the shipping of gold. In other words, it is regarded as being the most efficient and wholly satisfactory

instrument that can be devised by which debts between the various countries can be liquidated.

In view of the very large foreign trade transacted by this country, it would seem to be essential that our manufacturers and merchants should study carefully the functions of the bill of exchange, and also the fluctuations of the various foreign exchanges, that excellent barometer which indicates the strength of the countries concerned in international transactions.

These transactions, as already shown, cover the import and export of goods, financial and commercial operations of every kind, stocks, debentures, and coupons, remittances of money, and many other items, and are naturally of a very comprehensive and substantial character; they are studied very carefully by all sections of industrial activity in Germany, as they realise the importance of these services in influencing the tendency of trade.

Our manufacturers must realise that trade is diverted to those countries which can produce the most efficiently, are the most energetic, and which conduct their transactions in the most intelligent manner. The foreign exchange, for example, is the barometer which enables the merchants, the bankers, and the industrialists to form a true estimate of the upward or downward tendency of trade, and the general international situation. Various economic, financial, monetary, and political events influence

the progress of business and the position of the foreign exchange, particularly in those countries having a forced paper currency, as they are more sensitive to political rumours or any change that may take place in the international barometer.

Not only that, but owing to the improved means of transit and improved telegraphic and cable service, producers and consumers in foreign countries are brought into closer contact, so that competition for international trade is more keen than it used to be. This competition is also due, in a large measure, to the fact that Germany and America are as capable as Great Britain of satisfying the requirements of the world.

And now we have to discuss the rate of exchange and what it means. Before a manufacturer enters into engagements abroad, this is an aspect of the question which he has to consider before submitting his quotations. His first object is to obtain the highest rate of exchange for the bill he may draw against the goods he may ship abroad, and if he is an importer of goods he will endeavour to arrange his transactions so that he may pay as little as possible in pounds sterling for the goods or stocks he may buy abroad. He will desire in both cases to have the rate of exchange in his favour.

Occasions do arise where it is impossible for the manufacturer to export or import goods owing to the position of the rate of exchange, but if it varies

in his favour, then it may become a profitable transaction.

But what is meant by the rate of exchange? We will not discuss here the technical aspect of the question as it may concern the banker, but merely its relation to industrial problems.

In the study of foreign exchange great confusion often arises in the mind of the ordinary layman owing to the twofold character of the action of exchange and its results, and of the necessity of realising in one conception the drawers and buyers of the bills, and the two countries or more to which the transactions apply. We have seen what is meant by a bill of exchange. Now, assuming that the time has arrived for the settlement of these bills, if it is found that London owes more to New York than New York to London, the supply of bills on New York in London will naturally be less than the supply of bills on London in New York. In other words, a situation would arise where the demand for bills on New York in London would be greater than the demand for bills on London in New York. There would, therefore, be a temporary fluctuation in the value of the exchange in favour of the country occupying the strongest position. The moment the surplus of debt is liquidated, either by the shipment of gold or by other credits, the rate of exchange returns to par, and the struggle commences over again.

A perfect transaction would be as follows, viz.: Imagine two British manufacturers shipping to their respective agents in the United States goods of the value of £5,000 each; these two transactions would be equal to the value of £10,000, and bills would be drawn to that amount on the agents, payable, say, on the 1st December, and sold in the London market at the usual discount rate. On the other hand, imagine two manufacturers in the United States shipping goods to their British customers, one to the value of £7,500 and the other to the value of £2,500, which transactions would also equal £10,000, and that the American manufacturer drew bills on their British customers payable on the 1st December, and sold them in the New York market at the usual rate of discount. On the due date—*i.e.*, 1st December—the bankers in New York and London would have an equal amount of bills to exchange and close the transactions. It will be seen, therefore, that the debts on both sides would be liquidated without a single ounce of gold or silver being transmitted. The rate of exchange would then remain at par, but in the event of the bills payable being greater on the one side or the other, the rate of exchange would vary in favour of the country to which the greater amount of money was owing, and would not return to par until gold or some other form of credit had been shipped to correct the difference.

There do arise occasions, however, when a group of nations form parties to a transaction at a particular time. For instance, occasions arise, say, when tea is shipped from Yokohama to New York, and the owner draws a bill on the importer in New York payable in London; the accepting bank in London therefore looks to the New York importer for payment. And when a British manufacturer ships goods to Japan of a value approximating the value of the tea shipped to New York, drawing a bill in the usual way on the Japanese importer payable in London. And when a British importer imports food products from America of a value approximating the value of the tea, and has a bill drawn on him by the American exporter. It will be seen that in this instance given the transactions are all squared without the necessity of gold or silver having to be transmitted by one party or the other. It does not follow, of course, that all transactions between nations are squared in this manner. On the contrary, occasions do arise when the net balance of trade is against a country which can only be liquidated by the creation of temporary credits or a loan.

The foregoing is a simple elementary illustration of the working of the foreign exchanges, given for the purpose of enlightening the industrialist as to their operation. It should be remembered, of course, that direct exchange relations between countries

usually follow in proportion to the direct exchange of imports and exports. The developments of foreign exchange between nations are always more or less modified in the course of a generation : they fluctuate in favour of those nations whose trading is conducted on the most intelligent lines; this is a platitude, but it is as well to bear it in mind.

Now a striking example of the fluctuation of the foreign exchange is given in the case of New York and London. In the month of August, 1914, immediately after the declaration of war, the rate of exchange on London in New York went considerably in favour of London.

From the address which Dr. Ewing Pratt, the Chief of the Bureau of Foreign and Domestic Commerce at Washington, gave to the Californian Bankers' Association at San Francisco, on May 27th, 1915, already mentioned, he states that the economic situation of the United States at the time of the outbreak of war, whilst it was apparently stable and fundamentally strong, was not as enviable or as independent as many of them were wont to believe; and that, as a matter of fact, it took a great European War and a catastrophe of first magnitude to show their dependence upon Europe. This was for the most part due to the large number of loans which had been made to the United States by Europe. The following extract, taken from Dr. Pratt's address, is most

instructive and illuminating, and is given for general information and because it is not in print :—

"The best index of the state of our foreign trade is what is popularly known as the balance of trade, but this is a term which is often improperly interpreted, and has been held to mean many things which it does not mean and never could mean. As popularly used, the term balance of trade means simply an excess of exports over imports or an excess of imports over exports, and it is popularly stated that when the volume of exports exceeds the volume of imports we are experiencing a favourable balance of trade; but when imports exceed exports, we are then experiencing an unfavourable balance of trade; and it is popularly supposed that when the imports exceed the exports we must pay the balance by shipments of gold, and that when the exports exceed the imports, balances must be paid to us in gold.

"As a matter of fact, nothing could be further from the truth. The excess of exports over imports is merely an apparent balance of trade,* and is only apparently favourable to us. There are many others, and as important factors, to be taken into consideration which do not appear on the surface, and which

* Dr. Pratt cannot mean this as a general principle. I imagine he has in mind only the general experience of the United States before the declaration of war. There must be a point beyond which an excess of exports is of advantage to the United States, as for instance in the situation which exists at present.

are therefore called the invisible factors in the balance of trade."

TOTAL IMPORTS AND EXPORTS OF MERCHANDISE OF THE UNITED STATES AND EXCESS OF EXPORTS DURING EACH CALENDAR YEAR FROM 1900 TO 1915.

Calendar Year.	Imports.	Exports.	Excess of Exports.
1900 ..	829,149,714	1,477,946,113	648,796,399
1901 ..	880,419,910	1,465,375,860	584,955,950
1902 ..	969,316,870	1,360,685,933	391,369,063
1903 ..	995,494,327	1,484,753,083	489,358,756
1904 ..	1,035,909,190	1,451,318,740	415,409,550
1905 ..	1,179,144,550	1,626,990,795	447,846,245
1906 ..	1,320,501,572	1,798,243,434	477,741,862
1907 ..	1,423,169,820	1,923,426,205	500,256,385
1908 ..	1,116,374,007	1,752,835,447	636,461,360
1909 ..	1,475,520,724	1,728,198,645	252,677,921
1910 ..	1,562,904,151	1,866,258,904	303,354,753
1911 ..	1,532,359,160	2,092,526,746	560,167,586
1912 ..	1,818,073,055	2,399,217,993	581,144,938
1913 ..	1,792,596,480	2,484,081,292	691,421,812
1914 ..	1,789,276,001	2,113,624,050	324,348,049
1915* ..	405,293,724	854,187,034	458,893,310

* Three months.

(*a*) " The first and most important factor in this invisible balance is the payments due to European capital on investments made in the United States. Federal, State, and municipal bonds were first sold

abroad in the first quarter of the nineteenth century, but beginning in 1836, when Baring Brothers purchased a large block of B. & O. Railway bonds, European, and especially English, capital has flowed steadily into the United States. In addition to the total amount of American securities held in Europe which are relatively fixed investments, there is a large floating debt, composed of produce bills, finance bills, loans against securities, overdrafts, &c., amounting in all to not less than $500,000,000. The annual net interest charged on this large body of foreign investments which we must pay to Europe amounts to something over $300,000,000.

"It is a great error, however, for us to figure this as a loss. It is only necessary for us to consider that our railways, our mines, and many of our manufactures have been developed with this capital. It is not only of great utility to us, but it is absolutely indispensable to our prosperity. We must pay the interest, but ours is the gain in internal development. Value has been added to our land, our resources have been made accessible, and the production of wealth has been increased many fold.

(*b*) "A very large item in our invisible balance is that of expenditures of American tourists abroad. This is an increasingly important item, and in 1914 (fiscal year ending July 1), probably not less than 286,586 Americans travelled abroad, whose expenditures were approximately $250,000,000.

(*c*) " Another item in the invisible exports of the United States is that of remittances to friends. This is an item largely dependent on our very large foreign population. The total foreign-born population of the United States is about fifteen million. These people probably send home a total amount of not less than $150,000,000.

(*d*) " The fourth important factor in this invisible balance of trade is the tribute which we must pay to other nations because we lack a merchant marine. The payments which we have made to other nations have been very large, and amount normally to probably not far from $50,000,000.

" In order to show this balance clearly it might be worth while to strike a very brief balance-sheet, and to find out exactly where we stood at the beginning of the European War.

" Balance of Trade in Detail.

" Our balance of trade, both visible and invisible, during the last fiscal year would, therefore, be something as follows :—

FOREIGN TRADE OF THE UNITED STATES DURING THE FISCAL YEAR 1914.

Merchandise.

	$	$
Exports..	2,365,000,000	
Imports..	1,894,000,000	
Excess of exports over imports		470,000,007

GOLD.

Exports..	112,000,000	
Imports..	67,000,000	
Excess of gold exports over imports ..		45,000,000

SILVER.

Exports..	55,000,000	
Imports..	30,000,000	
Excess of silver exports over imports ..		25,000,000
Total Excess		540,000,000

REMITTANCES.

Interest (net)	250,000,000	
Tourist expenditure (net) ..	170,000,000	
Remittances to friends (net)..	150,000,000	
Freight	25,000,000	
		595,000,000
Excess of sum remitted over trade balance		$55,000,000

"This balance-sheet shows that we had payments to make in Europe over and above the total amount of merchandise exported, and this fact means that we were still contracting debts in Europe at the outbreak of this war. But the situation has changed since the 1st of August, 1914, and during the first nine months of the fiscal year 1915 the situation has been reversed, and a balance-sheet for those nine months, for which the figures are now available, shows that instead of owing Europe considerable sums at the end of that time, Europe actually owed us $452,600,000."

FOREIGN TRADE OF THE UNITED STATES DURING THE PERIOD FROM JULY 1ST TO DECEMBER 31ST, 1914, AND JANUARY 1ST, 1915, TO MARCH 31ST, 1915.

	July 1st to Dec. 31st, 1914.		Jan. 1st, 1915, to March 31st, 1915.	
MERCHANDISE.				
Exports ..	$1,067,000,000		$864,000,000	
Imports ..	808,000,000		405,000,000	
Excess of exports over imports		$259,000,000		$459,000,000
GOLD.				
Exports ..	$139,000,000		$2,700,000	
Imports ..	27,000,000		45,200,000	
Excess of exports over imports		$112,000,000		*42,500,000
SILVER.				
Exports ..	$26,000,000		$11,800,000	
Imports ..	13,000,000		7,200,000	
Excess of exports over imports		$13,000,000		.. 4,600,000
Total excess ..		$384,000,000		$421,100,000
REMITTANCES.				
Interest ..	$125,000,000		$62,500,000	
Tourist expenditures ..	50,000,000		25,000,000	
Remittances to friendsrelief	50,000,000		25,000,000	
Freight ..	10,000,000		5,000,000	
Total		$235,000,000		$117,500,000
Excess of trade balance over remittances		$149,000,000		$303,600,000
		$452,600,000		

* Excess of imports over exports.

It will be seen from the facts mentioned by Dr. Pratt, therefore, that, owing to the dislocation of the shipping traffic and the breakdown of the general machinery of foreign exchange in London in consequence of the declaration of war, the rate of exchange on London went considerably against the United States. This was due to her inability to ship gold or other credits to London to liquidate the variation in the exchange, which was against her. The following list of quotations will indicate the position more clearly :—

RATES OF EXCHANGE ON LONDON.

1914.	Sight.	60 days.	Cable.
July 2nd	4.88.10	4.85.75	4.88.85
July 23rd	4.88.10	4.85.75	4.88.85
July 29th	4.93.45	nom.	4.89.50
August	nom.	nom.	5.00
September	nom.	nom.	{ 5.00 4.95
October 15th	nom.	nom.	4.97½

In consequence, however, of clearing the Atlantic and the Pacific Oceans of enemy ships by the British Fleet, and also of the large orders which have been placed in America by the Allies for munitions of war and food products, a real balance of trade has gone in favour of the United States for the first time in its history, as mentioned by Dr. Pratt, amounting

to no less than $452,600,000 for the first nine months of her fiscal year ending in 1915, and which has enormously increased since. This is indicated by the following table, which is a continuation of that given above, and which shows the rate of exchange on London going strongly in favour of the United States :—

•	Sight.	60 days.	Cable.
October 22nd, 1914 ..	4.95	4.91.50	4.95.50
November 26th ,, ..	4.90¼	4.85	4.88⅜
December 31st ,, ..	4.85½	4.82	4.86.15
January 28th, 1915 ..	4.85¼	4.83½	4.85⅝
February 26th, ,, ..	4.80¼	4.79	4.80¾
March 31st, ,, ..	4.79¾	4.77½	4.80
April 22nd, ,, ..	4.79	4.76¾	4.79⅜
August 12th, ,, ..	4.75¾	4.71	4.76½
August 13th ,, ..	4.71⅜	4.67	4.72
August 14th ,, ..	4.69½	4.65	4.70½
August 16th ,, ..	4.67	4.62¾	4.67¾

Briefly put, the position is this, that shortly after the declaration of war if an American wished to come to London and desired to change his money, a five-dollar bill—*i.e.*, 500 cents—was only equal in value to a British sovereign, whereas on the 16th August, 1915, it would only cost him 467 cents —a reduction or a saving in his favour of 33 cents over the former transaction.

The rate of exchange of 467 cents on London is the lowest point ever reached, and may yet go lower unless immediate steps are taken by our authorities to liquidate the variation from the normal rate by creating credits in New York or shipping a sufficient amount of gold. What has aggravated the situation more than anything is the hasty manner in which the last War Loan was floated by us. It was hardly necessary to give a rate of interest of 4½ per cent. British credit was worth a better rate than that. A rate of 3½ per cent. not subject to income tax would have been a sufficient inducement; and it would not have depreciated the value of existing securities. If the Government desire the public to subscribe for War Loans, they should not destroy confidence in the value of existing securities. The bankers in New York do not know to what extent our income tax may yet go, hence their disinclination to accept our War Loans as at present constituted. The most satisfactory way to get over the exchange difficulty in New York would be to create a large credit in New York, in the form of short term Gold Dollar Treasury Bills, say for £100,000,000 sterling, bearing interest at a rate not exceeding 4 per cent. As these bills would be free of income tax, they would be most acceptable to New York bankers.

The normal rate of exchange on London is fixed at 4.86.65. The number of grains of gold contained in the British sovereign is equivalent to 4.86.65 in

the gold coinage of the United States, which may therefore be termed the "par of exchange" as between the two countries; that rate can be obtained at the New York assay office for every English sovereign of full weight. If gold is shipped to the United States in normal times, however, the importer has to pay the cost of shipment, insurance. loss of interest, &c., which is usually estimated at about 2½ cents in the pound, so that will bring it up to 4.89.15. In normal times, therefore, when the rate of exchange drops below 4.84¼, gold will begin to move from London to New York, or vice versa; when it goes above 4.89.15, gold will move from New York to London.

As the rate of exchange before the declaration of war was 4.88.85, it will be seen that the rate of exchange is now as much against us as it was against the United States shortly after the declaration of war, and for precisely the same reason. It is an excellent object lesson in the fluctuation of the rate of exchange.

The great drop in the rate of exchange on London is a serious matter for us, inasmuch as the British sovereign will not go as far as usual in settling dollar debts created by the purchase of munitions of war and food products by the Allies in the United States. Dr. Pratt, however, has a most interesting observation to make with regard to this aspect of the question, and as it is in many respects a sound funda-

mental principle, we cannot do better than quote it in full :—

"The low rate of sterling exchange in New York is not, however, altogether desirable, because an exchange rate on London of $4.80, or thereabouts, means that the pound sterling does not go as far as usual in settling dollar debts. The English buyer of cotton or wheat in all markets must give more sterling to make up a given sum in dollars. The situation is, therefore, entirely reversed from what it was immediately after the War broke out, and until late in the fall, when the balance of payments was against us and dollars were under-rated. The present situation is one which we can view, naturally, with comparative equanimity; but next to a business man's anxiety about how to pay his own debts, comes the anxiety about how other people are to pay him and continue to buy of him. The low rate for the pound sterling makes our commodities cost more to English buyers and to all buyers who must make payment from London, without any compensating advantage to us. It is equivalent to a tax on our commerce, and amounts to an obstruction between us and our customers. It is not a very large percentage yet—about one cent on a dollar—but with trade balances piling up as they have been in the last three months, it will be larger, unless some means are found to effect settlements.

"How large will this credit become? This is a question which we cannot answer at the moment. The course of trade is now heavily in favour of the United States. In August last, there was a balance against us of $19,400,396. Since then there have been monthly

balances in our favour, as follows: September, $16,341,722; October, $56,630,650; November, $79,411,271; December, $130,976,013; January, $145,730,996; February, $174,682,478; March (estimated), $157,000,000. The facts already given indicate that the monthly sums which the American people needed to send abroad for interest and for other purposes are not much more than $40,000,000. Hence, in January, America sold goods to the extent of over $100,000,000 in excess of the amount she needed to sell, in order to pay for her imports and to meet her foreign obligations. The United States was thus in a position to purchase over $100,000,000 worth of foreign securities. Inasmuch as the amount of gold imported into the country in January was comparatively insignificant, it is evident that the United States invested this large sum of money either in international bills or securities or to the account of American bankers in foreign countries. Were the trade balance of January maintained throughout the year it would be evident that the United States would invest abroad in the current year not far from $1,000,000,000. Whether or not the United States will have as much money as this to invest abroad in 1915 cannot as yet be determined, as the amount depends upon many factors, the influence on which cannot be predicted. Were existing conditions to continue, we would confidently expect the United States to invest in the current year millions of dollars in securities of other countries, or in her own securities now held in Europe. Indeed, a very conservative estimate of the amount of money which the United States will invest abroad this year is one billion dollars.

(*b*) "During the first few months following the

declaration of war, considerable amounts of gold were exported from the United States. In October the exports of gold exceeded the imports of gold by over \$44,000,000. In December the tide turned and the imports of gold exceeded the exports; and during the month of March, 1915, the excess of imports over exports of gold was \$24,696,576. This is only another evidence of the fact that the gold is being imported to meet the large trade balances which have been piled up in our favour. It may not be an entirely desirable thing to have a large quantity of gold coming into this country, especially when so large an amount of gold has been set free for current use by the provisions of the Federal Reserve Act; but these importations do indicate the fact that we are piling up a continued trade balance in our favour. The total excess of imports over exports of gold from December to the present time (March, 1915—4 months), has amounted to a total of \$46,552,217.

(*c*) "Without doubt the most important factor in foreign trade affecting domestic prosperity is the position which the United States is assuming as a creditor nation and her present ability to loan capital to other nations.

"The bugaboo of our being a debtor nation is no longer a bugaboo, because in spite of the fact that we are still indebted to foreign countries, we have started to pay off our indebtedness and are thus becoming for the first time a creditor nation. Personally I have not been very much impressed by the statements of those who say that because we are a debtor nation, or because large amounts of American securities are held by foreign countries, we should not attempt to go after

foreign business on a large scale and to make investments in foreign countries and to invest in foreign securities. After all—and every banker knows that the average business concern does business on borrowed capital—there is no reason why if we can use foreign capital in developing the resources of the United States we should not do so. *We can then use our own capital, if necessary, for the development of foreign countries which will become markets for our own manufactured products.*"

The italics are ours. In our last article we clearly indicated this possibility; but now let us go further with Dr. Pratt in his own words. We make no excuse for quoting so extensively, as his address is not in print, and it would be a pity that a case so ably presented should be lost to literature. It fully substantiates the case we have hitherto defined from our standpoint.

"The secure position in which we seem to be established as a creditor nation on current account is the most important factor in the home situation. As already indicated we have reached the situation where, instead of being concerned lest our securities may be returned too fast, we are beginning to be concerned because they do not come fast enough to keep the exchange in normal condition. The short foreign loans that are being made here are the same as gold in the reserves as protection against any foreign liquidation of our securities that may develop as the work progresses. The credits of this class that have been given in no sense represent the capital withheld from home use. For

if they were not taken it would be necessary that reserves in this country should be correspondingly stronger. They are an outer line of defence which must be passed before a foreign demand can reach our store of gold. Considering the surplus reserves of the national banks and the reserves and note issuing power of the Federal Reserve Banks, the situation is now so strong that an enforced contraction of credit seems to be beyond possibility. This assurance is a great boon to the business community. The large trade balances of credit balances which are being piled up abroad by the United States would naturally be liquidated through the financial clearing house of the world, namely London. They are the natural balances in our trade with the world. They have been settled for the most part through London as the clearing and banking centre and it was in this sense that the United States owed $55,000,000 to London last summer.

" What with the issue of foreign securities in London prohibited and with the French and German markets all practically closed to the issue of international securities, New York has the whole field of international finance at her feet. Whether or not New York will be able to maintain after the war the great position which she now holds as an international money market is a question yet to be decided. It is sufficient to know the undoubted fact that New York is rapidly becoming a great international money market in which capital can be obtained by every one having adequate security to offer and willing to pay a reasonable rate of interest. In consequence of this investment of capital abroad and all the great purchases of goods by the belligerent States, the United States are exporting an enormous

quantity of goods in excess of the amount they are purchasing.

"Since November, the amount of foreign securities placed in the United States has totalled over $200,000,000, and this sum represents only the actual formal loans which have been placed. In addition to these there have been credits, especially for very large amounts, the exact size of which is unknown, but which probably amounts to much over $100,000,000.

"A list of the principal issues of these securities is as follows :—

FOREIGN LOANS RAISED IN NEW YORK SINCE NOVEMBER, 1914.

CANADA.

Canadian Pacific Railway Equipment Trust Note	$12,690,000
Montreal 5 per cent. 3-year Debentures ..	6,900,000
British Columbia 1-year 4½ per Cent. Treasury Bills	2,700,000
Canadian Northern Railway 5 per Cent. Equipment Notes	2,000,000
Toronto Harbour 4½ per Cent. Bonds ..	1,000,000
Toronto Railway 6 per Cent.	1,500,000
Toronto, City of, 5½ per Cent. Debenture Notes	3,000,000
Alberta, University of, 4½ per Cent. 10-year Debentures	1,000,000
Ottawa, City of, 1-year Notes, 5 per Cent.	1,000,000
Manitoba, Province of, 5 per Cent. 5-year Debentures	5,475,000
New Brunswick, Province of, 5 per Cent. 5-year Bonds	700,000
S.S. Marie, City of, 5 per Cent. 30-year Debentures	500,000
Ontario, Province of, 5 per Cent. 5-year Bonds	3,000,000

FOREIGN LOANS RAISED IN NEW YORK, *&c.—Continued.*

Calgary, City of, 3-year Treasury Notes ..	$2,000,000
Saskatchewan, Province of, 5 per Cent. 3-year Bonds	2,500,000
Do. Further issue arranged for ..	3,500,000
Montreal Trans. and Power, 2-year 6 per Cent. Notes	7,000,000
Winnipeg Electric Railway, 1 to 2-year Gold Notes, 6 per Cent.	1,500,000
Province of Quebec, 3 or 5-year 5 per Cent. Gold Bonds	6,000,000
City of Quebec, 5s. 1920	2,125,000
City of Toronto, 4½ per Cent. Bonds due January 1st, 1949 and 1955	2,500,000
City of Montreal, 3-year 5 per Cent. Gold Bonds	6,100,000
	$74,690,000

Argentine, 6 per Cent. Notes	$15,000,000
Argentine, 6 per Cent. Treasury Gold Bonds	25,000,000
Swedish, 6 per Cent. Treasury Notes ..	5,000,000
Norway, 6 per Cent. Notes	3,000,000
Germany, 5 per Cent. 9-months Treasury Notes	10,000,000
France, 5 per Cent. 1-year Treasury Bonds	50,000,000
France, Credit	10,000,000
Switzerland, 1-3-5-year 5 per Cent. Notes	15,000,000
Republic of Panama, 30-year 5s. ..	3,000,000
Russia, Credit	25,000,000
Greece, negotiated with American capitalists	7,000,000
* Grand Total to date	$242,690,000

* Since this return was made other Foreign loans have been created in New York, and with the British Credit which is about to be arranged in New York we may consider the total figure is by now considerably more than doubled.—J. T. P.

"In the shifting of securities that is bound to take place from the English holdings of Argentine and Canadian issues, they may be transferred to this country if a market for them can be found here. Their purchase, instead of new issues of British war bonds, would avoid all of the criticism that might be directed against the purchase of the latter as an unneutral act. Moreover, it would bring us into more intimate relations with these growing countries and have a tendency to help our own trade with them. The opportunity to finance these countries has by no means passed, but the extent to which it may be improved depends upon the willingness of the American public to make these outside investments and give attention to the operation of enterprises in these countries. Bankers can negotiate the loans, but they will not be able to carry the policy far unless the buying power of the public is behind them.

"One of the undoubted results of the present financial situation will be the increased use of dollar exchange. Ever since the war began the dollar has become more and more important as a medium of exchange between foreign countries, and the use of foreign exchange bills drawn in dollars and drawn on New York have become much more stable than those drawn in any other currency and on any other financial centre. If New York and the United States behind her can become a great financial clearing house and great financial market in which foreign countries can place loans and sell securities, there is no doubt but that the dollar will become an increasingly important factor in international trade.

"One of the most important elements which will

go far towards making New York and the United States the financial centre of the world is the development of a branch bank system. Prior to the passage of the Federal Reserve Act of 1913, the national banking institutions were not permitted to extend their activities to foreign countries. The Federal Reserve Act, however, has made it possible to establish branches of American banks in foreign countries and to place back of the branches the prestige, influence, and resources of the home bank. One national bank has already established five foreign branches and contemplates the establishment of other branches in the near future. Other banks in this country have established very close relations with the banking institutions of other countries, and still other banks are carefully scrutinising the field and considering the possibility of establishing branch banks and closer relations with the banks of foreign countries.

"The development of the dollar exchange will of necessity be a slow process. London has been the money market of the world for centuries, and the English pound sterling has been the common denominator of value in all commercial transactions for so many years that it will take time to persuade the South American or the Chinaman or the South Sea Islander to substitute the dollar for the pound in his financial transactions. Business interests of the United States must help in this movement, and wherever possible must insist that the payment for foreign invoices be made in dollars on New York rather than pounds sterling on London. New York cannot hope to become a financial city of world-wide importance until the dollar becomes known and its value respected in the markets of the world.

"A provision of the Federal Reserve Act of the greatest value to commercial interests is that which permits national banks to accept six months bills drawn against actual shipments of merchandise in foreign countries, and which provides that those bills, when within ninety days of maturity, may be rediscounted with the Federal Reserve banks. It must not be supposed, however, that the branch banks which are to be established by American banks can confine themselves solely to the foreign exchange business. They must reach out and do a business which is far beyond that of the ordinary foreign exchange department of the national bank. *The business of a branch bank which will really mean something in the development of American trade abroad, must include not only the functions of foreign exchange and the collection of drafts, the accepting of drafts on account of the customers, and open market operations in foreign exchange, but must go in for, to a considerable extent, local loans and discounts, and must take part in underwriting securities and other business commonly handled in this country by trust companies, and must occasionally render services in marketing products. In other words, the branch bank must be the outpost of American finance.*

"There are, however, certain elements in the situation which must be taken carefully into consideration and which must be reckoned with in determining the course of trade and the continuance of prosperity into the United States. We must not overlook the fact that to a certain extent the present return to a condition of normal prosperity is built upon a certain abnormal foundation. We must not forget the fact that the character of our trade with foreign countries has been

considerably limited in the past few months, and that the alterations are due to the fact that an abnormal war situation exists in Europe. The exportations of manufactured goods are largely composed of munitions of war and various materials which are for the use of the belligerent armies and navies. Nor must we forget the fact that a large part of our exports and exportations of food supplies which are being sent to Europe at abnormally high prices because certain of our competitors are not at present in the market, and because there is an unusual demand either for immediate consumption, or for the purposes of establishing a food reserve in the belligerent countries.

"There seems to be little difference of opinion among financial experts as to the fact that there will be upon the conclusion of hostilities a more or less serious reaction in the upward tendency which is exhibited in almost every line of industry at the present time. The American manufacturer must look forward to the cessation of his war contracts at the conclusion of hostilities and the return to normal business conditions in Europe; there is bound to be a period when orders will not come in in large quantities and when conditions will not be conducive to trade expansion. The manufacturer must also reckon with the important fact that the largest foreign market of the United States will be seriously affected for months and perhaps years after the conclusion of this war. The market in which the American manufacturer has sold a large proportion of his products going abroad has been very seriously disorganised and will remain so for a considerable period at the end of this war.

"There is every indication, however, that the

United States will be benefited in the long run by the conditions and problems which she has been forced to meet in the last nine months and will probably be forced to meet in the succeeding months. The emphasis which has recently been laid on the value of foreign trade cannot be anything but helpful to the interests of the United States. Each new foreign market developed by the American manufacturer means more stable trade and more stable business conditions in this country. We are all perfectly aware in the United States of the significance of a crop failure and when one of our great staple crops like cotton, or wheat, or corn, fails us, we know that it means slackened business activity and depression. This is simply because of the curtailment of the purchasing power of a large part of our customers. But it is unlikely that the wheat crops of the United States, and Canada, and Argentine, and Russia, will fail at the same time, and therefore, if our manufacturers are doing business in all of those markets the failure of any one of them will be of relatively less importance. The greater the extension of our markets and the great diversification of our outlets for our manufactured products, the more stable will our domestic conditions become.

"*The banking institutions and the bankers of the United States have something more than a passing function to perform in the present situation. Perhaps the most vital need in the development of our foreign trade at the present time is the need of means of financing our foreign trade. It is the banking institutions of the country whose duty it is to finance foreign trade and who should be prepared at the present moment to step into the breach and finance the developing foreign trade of the United*

States. The Federal Reserve Act has made it possible for the first time for the national banks of the United States to establish branch banks in foreign countries. Up to date only one national bank has taken advantage of this provision. There is plenty of room for other banking institutions, and it is hoped that singly or co-operatively they will soon enter this field. It is not, however, always necessary to establish a branch. It may be equally effective to establish close connections with foreign banking institutions. The thing which is most needed is that the banks provide the American manufacturer with American banking facilities."

The italics are ours. Now the object lesson for us to be derived from the foregoing most admirable statement is this, that we must embark upon a somewhat similar policy. But before we can do this the Free Trade School must go: it is not sound enough in its conclusions; its principles have been tested and found wanting, and we are spending millions of money right and left in the attempt to save the ship. Free Trade, as we have already mentioned, is an abstract proposition and negative in its results. You cannot build up a scientific system of National Economics unless you have the essential basic conditions to build upon, and you cannot find these in an abstract or negative proposition. Our present working conditions have proved insufficient to enable our industries to develop

on the highest possible basis of efficiency. There has been far too much neglect of our industrial, scientific, agricultural, and educational activities, all of which have been sacrificed at the altar of the Free Trade School, and this is clearly manifested in the collapse of the rate of exchange on London in New York. This want of appreciation of the essential working conditions in which our industries should operate has placed us at the mercy of the various trusts and rings in America, with the result that, owing to the absence of competition, we must pay whatever price they may demand for the munitions of war, machinery, and food products we require for the successful conclusion of the war; not only are the prices exorbitant, but we are compelled to pay part of the profits over again in consequence of the depreciated rate of exchange. As we have more than once stated, an industrial system which will not stand the test of adversity cannot be a sound one, either in theory or practice, in a time of prosperity.

Our first duty, therefore, must be to place a restriction upon imports, upon the lines suggested herein, so as to correct, as far as may be possible, the adverse balance of trade and rate of exchange with the United States. There is no need, for example, to make matters worse by allowing the free importation of motor-cars for luxury and pleasure; it is in any case an unpatriotic thing to do, considering that our own motor manufacturers are fully

engaged upon the production of munitions of war in this country.

Our next duty is to ensure that a Ministry of Industry and Domestic Commerce is properly established, with a requisite technical staff to ensure that our Foreign and Domestic commerce is conducted upon scientific principles. National Economics, like everything else, must develop along evolutionary lines, but it cannot be based upon Empiricism, of which Free Trade is the symbol. The methods now employed in conducting the business of the country are wholly Empirical, and are under the control of people who do not comprehend the essential working conditions upon which the business of the country should be conducted. Not only that, but past experience has shown that these same people will even sacrifice our national welfare to catch votes for the particular party to which they belong. Exact Science is nothing to them; political life is everything. It should be the business of the Minister of Industry to see that the financial and industrial interests of the country are co-ordinated for internal and external purposes upon a basis mutually satisfactory to all concerned, in order to further our national and imperial interests for the welfare of the State. And no other consideration should prevail.

Finally, we should ensure that those demagogues in politics are removed out of harm's way who

attempt to pervert the material and economic welfare of the State for their own political purposes. The destiny of nations is now guided by the efficiency of its system of National Economics, which, expressed in other words, means Exact Science in all phases of national life, and we must awake to the reality of that fact. Shall we, then, allow our national welfare to be again flung into the cockpit of party politics, and used as an instrument for catching votes? To be sold to the highest bidder? The moment has now come for us to decide this most vital of all questions. Are we prepared to do so?

There is only one thing to be said by way of conclusion, and that is this : that we are glad to see the United States derive whatever material benefits are accruing from this great war. She will be an important adversary for Germany to reckon with when normal conditions of trading return. If Germany won the great war even now, she would not be able to dominate the world in the industrial sphere of activity as she had hoped to do. She has already lost all that she had gained by peaceful methods prior to the declaration of war, and that is saying a great deal. She has one more miscalculation to add to those that have already occurred : she overlooked the position of the United States. The American industrial machine is now efficient, and waiting for the resumption of peace. As we must organise in peace for war, so we should organise in

war for peace. From our standpoint, therefore, is it not desirable that we should commence our share of this task at once, and put our industrial system upon the highest possible basis of efficiency, both from the manufacturing and financial points of view? Let us take time by the forelock, and not leave the consideration of this question until the conclusion of the war. It would be futile.

FIRST PRINCIPLES OF PRODUCTION.

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FIRST PRINCIPLES of PRODUCTION.

Extract from the Introduction.

At the conclusion of the great War now progressing it will be necessary for the leaders of British Industry and Science to take stock of their positions. The positions which existed in their respective spheres of activity prior to the declaration of War will have to undergo considerable modification. It is necessary that this shall be done, for the working conditions which we now find about us have been greatly altered, both to our disadvantage and to our advantage. The adverse circumstances which have been forced upon us are in the destruction of Credit Values and in the colossal non-productive expenditure on War material, &c., which is now taking place; the destruction of Capital Values and the non-productive expenditure referred to will all have to be paid for out of the profits earned by Industry for many years to come; and in order to enable Industry to do this without impairing its Trading capacity, it is essential that the working conditions in which it operates should be improved in efficiency.

N.B.—Politicians, Manufacturers, Men of Science, and others interested in the welfare of British Industry should read this Book. It is Educational. It has been largely responsible for the formation by the Government of a strong Committee of Men of Science to consider the question of Industrial Research. A sum of £30,000 has also been placed at its disposal by the Government for that purpose.

FIRST PRINCIPLES of PRODUCTION.

Extract from the Chapter on

THE INFLUENCE OF SCIENCE ON POLITICAL ECONOMY.

It is now necessary to study the relation of Science to Political Economy, and the strong but unseen influence it has had in exploding many of the theories now and formerly held by writers and politicians on the subject of Political Economy. The usual mistake that is made in this sphere of activity is the assumption that no change is possible in the factors which influence the views of Political Economists, as if any progress could be made without change. Politicians and writers should remember that Politics is one constant whirligig of change and progress, and that the conditions which prevail in one period of time will not necessarily prevail in another period of time.

Extract from the Chapter on

THE CO-OPERATION OF SCIENCE AND INDUSTRY.

By S. Roy Illingworth, A.R.C.Sc., A.I.C., B.Sc.Lond.

I.

Science in its broadest sense may be defined as exact knowledge. The significance of the use of the word 'exact' cannot be too firmly impressed upon the mind of the non-scientific person, for upon a true appreciation of the aims and scope of Science depends the answer to the question as to what part we should expect the scientist to play in industrial concerns. Only the study of Science itself can bring home to one the distinction that should be made between Knowledge in its ordinary sense and Science (as defined above), but perhaps a sketch of the growth of a 'science' out of the 'knowledge' of the ancients may assist the reader to grasp the distinction, and for this purpose we may select the science of Chemistry and trace its evolution from the Alchemy of the past, but it should be distinctly understood that the same reasoning applies to all branches of Science.

PRESS CRITICISMS
ON
"FIRST PRINCIPLES of PRODUCTION."

"What we must do in the way of reconstruction and how we must do it is admirably set forth in Mr. Peddie's book, in which patriotism is put on a business footing, so to speak. The author is a very sound anti-German; he quite understands that monstrous immorality which is the essential Hun's Hunnishness, and he admits that the high character of the British manufacturer and man of business has been a great factor in the hitherto progressive prosperity of his much-loved native land. But—. But he knows that British industry has suffered from a growing lack of scientific intelligence, and is not afraid to speak out on the subject and to exhibit the appropriate remedies, even at the risk of offending those who will have it that the enemy can teach us nothing whatever. In a word, he is that rather rare kind of patriot who would sooner get something done than say—something! And his book should be carefully read by all who wish to see this country fully prepared to hold its own in the intensified competition between nations for international trade which will follow the conclusion of military operations."

—*Morning Post.*

"Mr. Peddie tilts against the manufacturer's notion that the scientist is unpractical. In Germany and America industries have been created in the laboratory, and the manufacturers of those countries realise this fact and act upon it, and regard scientific research as a necessary adjunct to their business. An explanation that is not infrequently given by English business men of the difficulty of competing with particular German industries is the greater readiness of German banks to finance new industrial enterprises. But it is, Mr. Peddie contends, the very fact that the German manufacturer goes into his undertaking with the advantage of scientific assurance which enables him to obtain the required loan. Mr. Peddie gives some homely and convincing instances."—*Daily Telegraph.*

"Mr. Taylor Peddie warns us, in conclusion, that the working conditions under which we lived before the War are undergoing modification, and that when the War is finished we shall have to consolidate our position. How is it to be done? he asks, and he answers the question by recapitulating that the permanence and prosperity of the Empire can only be made secure by strengthening its basis with brains, science, education, and the organisation of its industrial and natural resources. Therein, he says, lies the foundation of the future British Imperialism.

"This is a really important book. It deals with the economic problems created by present changing conditions with such skill,

thoughtfulness, and calm judgment that it commands the attention of all of us who are groping about in search of light upon the future of our country. It is a fingerpost that points the way towards a new era of prosperity, and carefully warns us of shoals and rocks to be avoided. If we called it a true text-book of Imperialism we should not overrate its claim to be read."—*The Pall Mall Gazette.*

"The book studies, in an interesting succession of articles, how industry can be furthered by scientific organisation and by the direction of scientific authority in its various departments. Its writer's own thoughtful contentions on this theme are helped out by papers from the pens of other writers, among whom may be mentioned Mr. S. Roy Illingworth, Sir Norman Lockyer, and Dr. William Lorimer."—*The Scotsman.*

"This book should be carefully read by manufacturers, politicians, and public men who need to consider the problems of the trade war that will follow the conclusion of military peace. Not only must we arrange for the capturing of Germany's trade, but also for the holding of that trade. Mr. Peddie correctly foresees that credit values and wages will be reduced in Germany when industrial operations restart, and production costs will be even less than formerly."—*The Financial News.*

"Business men will find this work very interesting in view of the prevailing state of industry and commerce."—*Financial Times.*

"The organised effort now being made to increase the productive power of our factories and workshops is opening the eyes of the nation to many of the shortcomings of our industrial system. Most opportunely, therefore, do we notice the publication of a volume entitled 'First Principles of Production' a study of the relation of Science to Industry, by Mr. J. Taylor Peddie. Our manufacturers would do well to study this book in the light of present experience."—*Colliery Guardian.*

"The publication of this volume is opportune, for it presents data which will tend to focus attention still further upon the present unsatisfactory recognition of science by the Government and manufacturing interests of this country.

"A state of war has disclosed this in detail; and demonstrated that a nation which is ill-prepared against industrial expansion in the modern sense, finds itself in an inferior position in times of war. For reasons which are still somewhat obscure, the British manufacturer has shown in the past a distinct preference towards those industries which develop best on lines of empiricism. Many have held that this is a defect; the present position has proved this to the hilt. Our manufacturers have surrounded themselves with an atmosphere which demands their whole attention in directing their ventures as they exist, manufacturing articles which depend upon the market already existing and the low selling price which always goes with such conditions. If empiricism were the only law

of manufacture (as it was some fifty years ago) they would by their application outdistance all competitors.

"The treatment in this volume of such matters as the influence of tariffs and political economy on the industries of a country will enable the general reader to grasp certain essential factors as they are recognised to-day by the contending schools. Chapters on finance and industry, and science and industry, are equally valuable as an introduction to these complicated and involved relationships, which are so little understood in certain quarters where they should really be mastered in detail. Not the least satisfactory feature of this volume is the reprinting, with notes by Professor R. A. Gregory, of Sir Norman Lockyer's address on the Influence of Brain Power on History, and articles on the Steel Industry by Dr. W. Lorimer, and on the Chemical Industries by Professor Percy Frankland."

—*Nature.*

"Mr. J. Taylor Peddie, F.S.S., in his book, "The First Principles of Production" (Longmans, Green & Co., 5s.), has many valuable lessons to offer non-combatant Britain. While the Germans are pre-occupied with the business of hating, we should turn the occasion to advantage and repair our past shortcomings. We should build up the gaps in our educational system, we should bring about the all-essential alliance between science and industry, we should harness brain to labour. In short, we should study, with humility, Germany's industrial methods, and improve upon the German model while there is yet time. This is the hour in which to wipe out the ancient prejudice which has for too long divorced theory from practice in British industry, and has divided trade from research. The wide ramifications of British industry must be populated with chemists; we must be reinforced in our fight for supremacy in the world's markets by the technologist, the man trained in research, and the man trained in routine. And to that end our whole system of technical education must be revised, remodelled on Continental lines, and speeded up. That is the message Mr. Peddie has to give industrial Britain to-day in his timely book, and there his views thus baldly outlined are developed most interestingly. They are supplemented by reprinted articles from distinguished and scientific thinkers like Sir Norman Lockyer, Mr. S. Roy Illingworth, Mr. William Lorimer, and Professor Frankland."

—*Sheffield Daily Telegraph.*

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